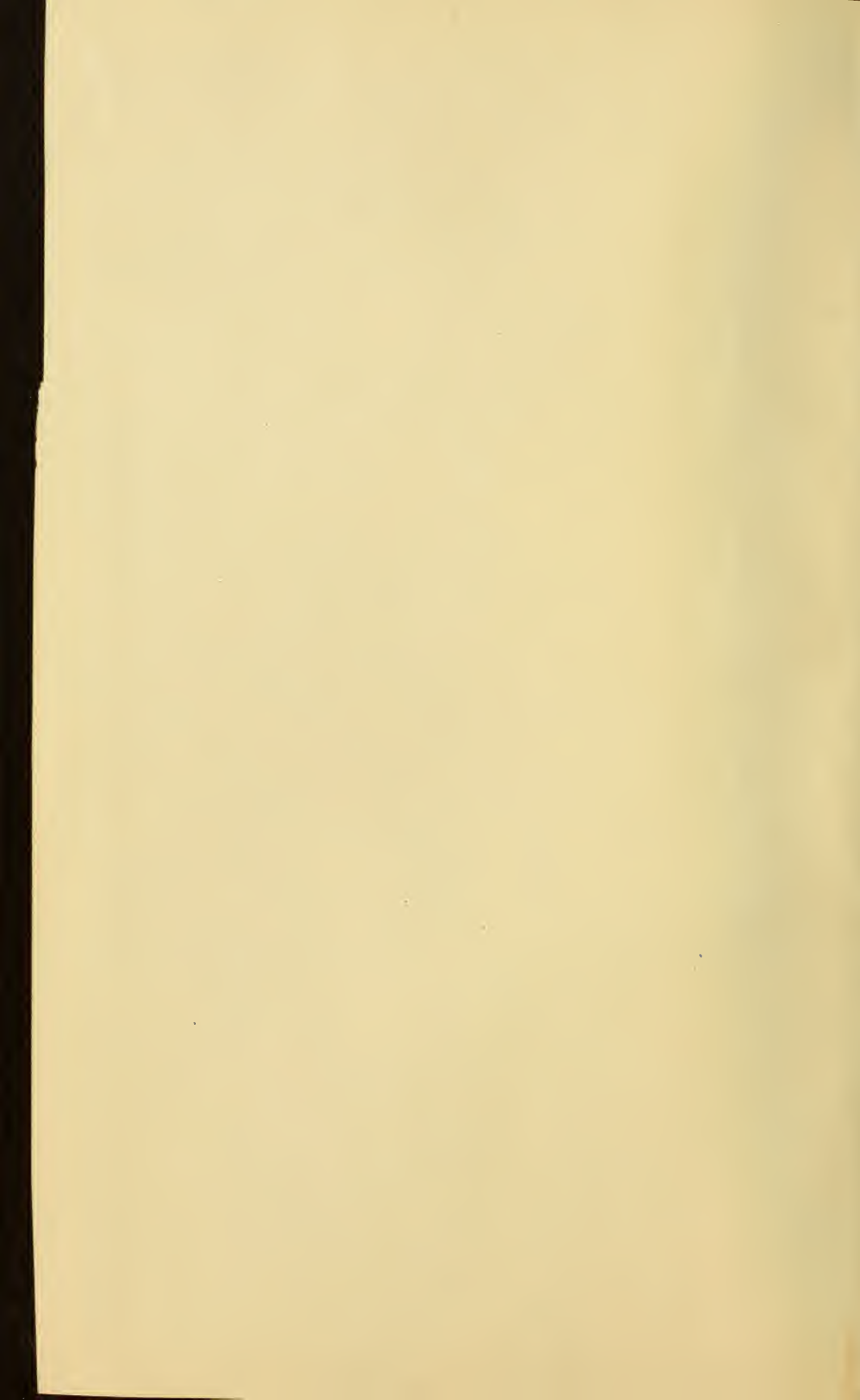
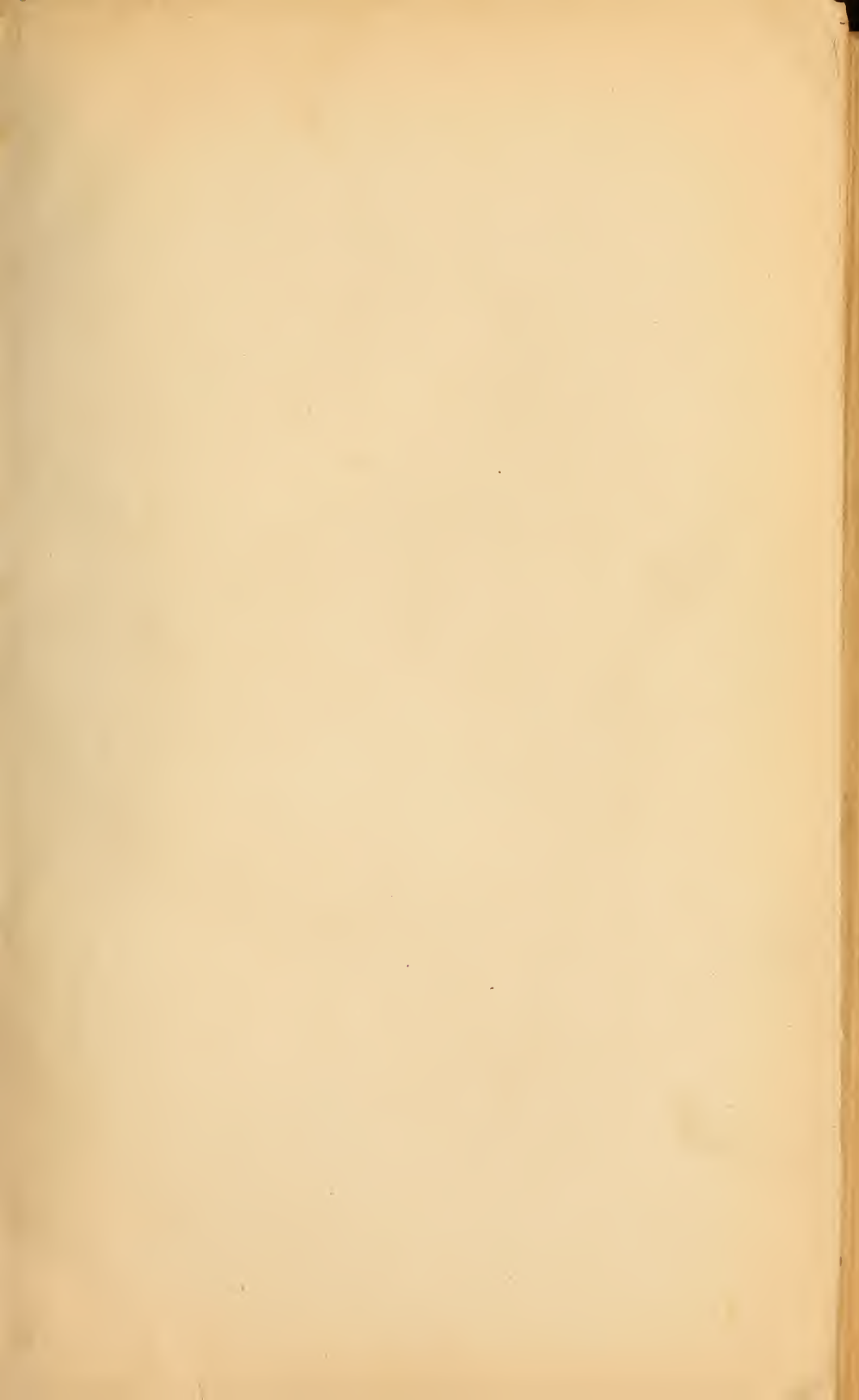
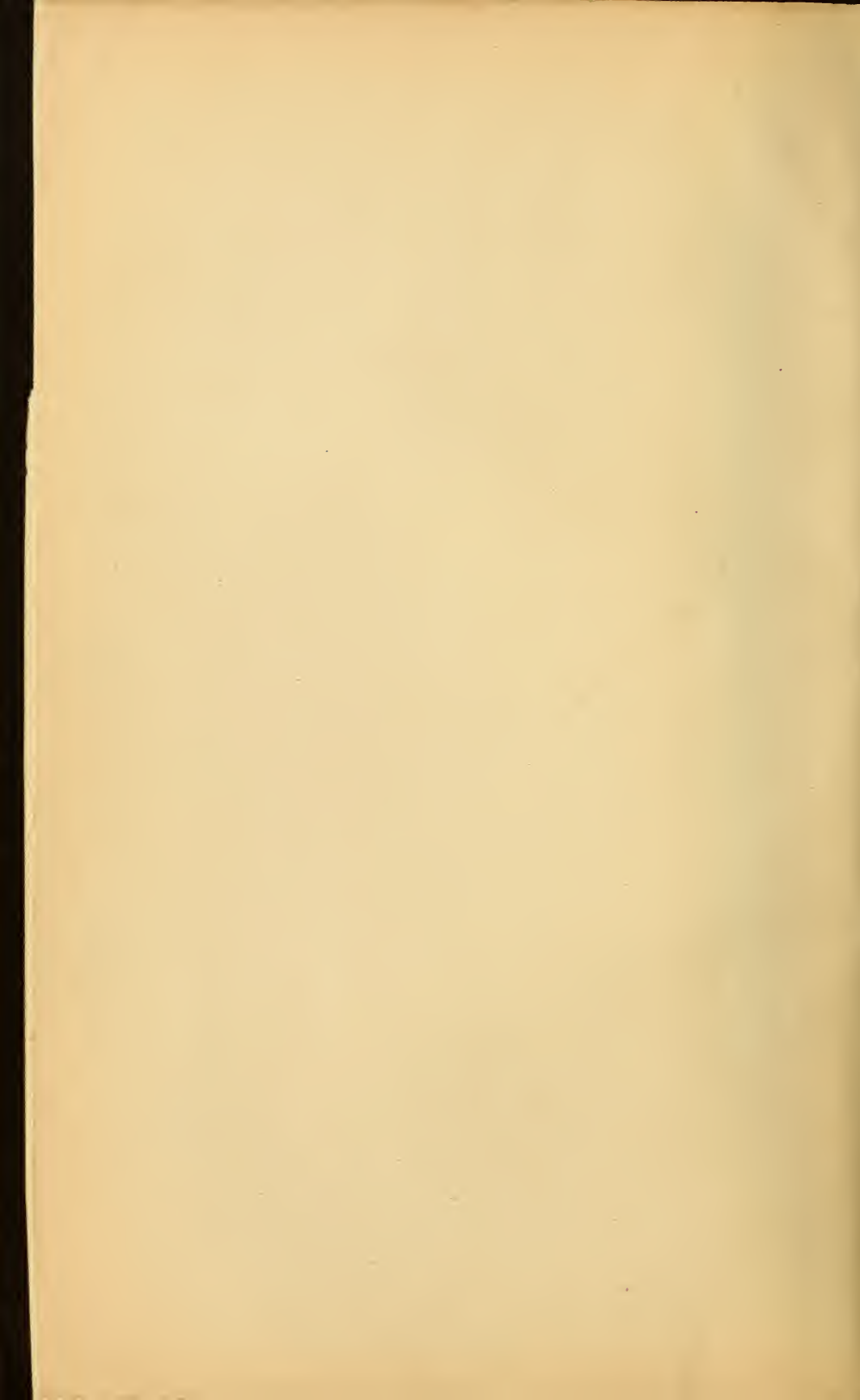










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OBSTETRIC CLINIC:

A PRACTICAL CONTRIBUTION TO THE STUDY

OF

OBSTETRICS, AND THE DISEASES OF
WOMEN AND CHILDREN.

BY

GEORGE T. ELLIOT, JR., A. M., M. D.,

Professor of Obstetrics and the Diseases of Women and Children in the Bellevue Hospital Medical College
Physician to Bellevue Hospital, and to the New York Lying-in Asylum; Consulting Physician to the
Nursery and Child's Hospital; Consulting Surgeon to the State Women's Hospital;
Corresponding Member of the Edinburgh Obstetrical Society, and of the
Royal Academy of Havana; Fellow of the New York Academy
of Medicine; Member of the County Medical Society,
of the Pathological Society, etc.

"Plus on s'élève, plus l'horizon s'étend."

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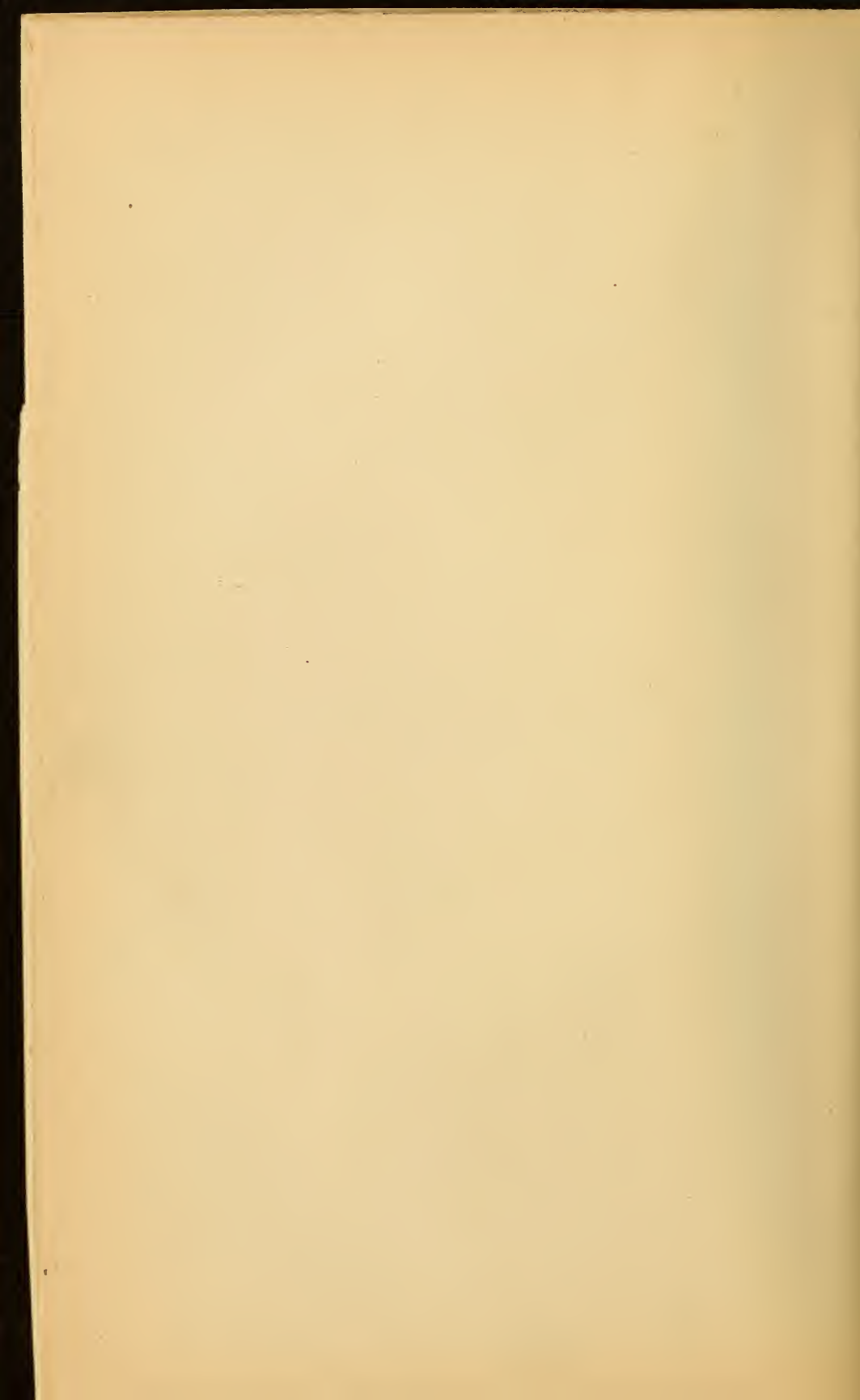
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P R E F A C E .

DURING a service of fourteen years in Bellevue Hospital, it has been my constant endeavor, by clinical instruction, to make my advantages available for others ; and I have published many cases which interested me most deeply, and especially such as terminated unfortunately, both in medical journals and in papers read before the New York Academy of Medicine and the State Medical Society.

At the commencement of my service in Bellevue during April and May, 1867, I determined that the most interesting cases should serve as the basis for a volume, in which should be interwoven the substance of such clinical remarks as were then made to the class in attendance, with such other practical hints as might naturally suggest themselves during the preparation of the work ; but that the great aim of the book should be, to illustrate my views with the cases which had accumulated on my hands, or had been published in journals now discontinued, and not very available for reference.

Such a course has allowed me to adopt the style and phraseology of a lecture whenever the character and extent of the subject permitted ; and has led me to place those cases treated in the designated service, at the commencement of the chapters, where they serve as texts.

The cases thus collected represent faithfully the difficulties, anxieties, and disappointments inseparable from the practice of obstetrics, as well as some of the successes for which we are entitled to hope in these arduous and responsible tasks. They illustrate debatable and elective methods of treatment, and may therefore contribute to the establishment of laws as yet undecided. They supply a large number of facts in elucidation of the relations of albuminuria to pregnancy, and demonstrate alike the unexpected difficulties and the unexpected ease which may mark the performance of obstetric operations.

While available, therefore, for critical analysis, their fullness of detail may render them of value for the student and the practitioner. The clinical remarks represent succinctly, but fully, my own views of practice. For the facilitation of reference, a very copious and carefully prepared index has been added.

I have also taken this opportunity to republish the results of the study of kystein by the late Dr. Henry Van Arsdale and myself, as the paper has not been so accessible to the profession as we had desired; and as the lapse of time and further observations have convinced me of the correctness of our conclusions.

Finally, the work is presented as a partial discharge of the debt due to the profession by all who enjoy hospital advantages; and in grateful recognition of the benefits which the author has derived from the recorded experience of others.

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OBSTETRIC CLINIC.

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RELATIONS OF ALBUMINURIA TO PREGNANCY.

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*CASE 1. Bright's Disease; death four days after delivery; no convulsions: peritonitis.—Dr. D. McLean For-
man, House Surgeon.*

BRIDGET CONWAY, aged 21; Irish; unmarried; admitted to Bellevue, April 8, 1867, in the ninth month of her first pregnancy. It was ascertained that her feet had been swollen for the last three months, during which time she has suffered a great deal from vomiting and disturbance of the eyesight, principally from sudden temporary darkness. The urine is loaded with albumen (sp. grav. 1018), and contains large hyaline, epithelial, and granular casts. The abdomen did not appear to be larger than was natural for the time of gestation, but distinct peritoneal fluctuation was

recognizable. The foetal heart could not be heard, but by pressing the fluid from over the uterus the movements of the child in utero could be distinctly appreciated. The patient's face is pale, anæmic, not puffy. She was at once placed on a non-nitrogenous diet, her bowels moved at least twice a day by hydragogue cathartics, and a hot-air bath administered every second night.

Labor commenced on the 15th, one week after admission, and was natural in every respect. Head presentation. R. O. A. 1st stage, eleven hours; 2d, three and a half; 3d, five minutes. Male child; weight, seven and one-quarter pounds. Throughout the labor the pains were feeble, and the woman complained greatly, both with each contraction and whenever the hand was laid on the abdomen.

17th.—She has done well since her confinement. To-day her face is markedly puffy. There is a free secretion of urine. Ordered hot-air baths, saline cathartics, and quinine. 18th.—Great pain and tenderness of the abdomen complained of; tympanites; patient lies on her back, with her knees drawn up; her face has an expression of pain; pulse, 164; respiration, 38. Ordered a turpentine stupe to the abdomen, and an anodyne, hyoscyamus and camphor. Three hours later she vomited a greenish material. Her respiration had increased to forty-four in the minute, and wholly thoracic; pulse 164; is not suffering much pain; has passed to-day 54 ounces of urine. 19th.—There is no improvement in her condition. There is still no suppression of the lochia. In the afternoon she was transferred to a medical ward, where she received a hot-air bath, and was kept moderately under the influence of opium, until the morning of the 20th, when she died. Mind clear. *Autopsy at 3 P. M., April 21st.* The abdominal cavity contained about six quarts of fluid. Slight signs of exudation of lymph on the intestines. Liver somewhat enlarged, and apparently fatty. Kidneys were fine examples of the large white variety, so pronounced by Prof. Alonzo Clark. The uterus contained a

clot the size of a plum. Heart slightly hypertrophied, but otherwise healthy. Lungs appeared healthy, though the lower lobe of the right lung was carnified. Brain normal.

Prof. A. Flint, Jr., M. D., furnished the following report of the microscopic appearance of a portion of the kidneys, liver, and heart:—*Kidney*. "The convoluted tubes of this specimen were completely filled with dark granular matter, which did not, however, have the appearance of oil. Particles of these granules were also found in the Malpighian bodies. The granules were markedly cleared up by the addition of acetic acid.—*Liver*. The cells of the liver were dark, and filled with the same kind of granules which were observed in the kidneys. There was not an unusual quantity of fat, although the nuclei in most of the cells were obscured. The granules were cleared up by acetic acid.—*Heart*. Perfectly normal."

CASE 2. *Albuminuria ; secretion of urine very markedly diminished in quantity ; rigid cervix treated with douche and Barnes's dilator ; still-born putrid child, with syphilitic liver ; mild diphtheria and laryngitis subsequent to confinement ; recovery of mother.*—Dr. Mead, House Surgeon.

Annie Hannegan, German ; single ; primipara ; admitted to the hospital May 14, 1867. Her legs are very œdematous. She complains neither of headache, nausea, nor disturbance of vision. The urine becomes almost solid when tested by heat and nitric acid. No casts can be found. May 15th, 6 P. M. She has passed only one or two ounces of urine to-day ; and it appears that she has passed but a very small quantity for the last three days. The catheter being introduced, only a drachm of urine is found in the bladder. Complains of pain over the region of the uterus ; os undilatable ; foetal heart inaudible ; breech probably presenting. Dry cups over the kidneys, and hot-air bath ordered. Dr. Elliot then consulted, who approved the treatment, and ordered, in

addition, a brisk cathartic and diuretics, and warm douches, for dilatation of the cervix; deeming it desirable that the labor should be brought on as soon as possible. Five grains of the mild chloride were given, followed by the sulphate of magnesia. Two doses of this having been vomited, a scruple of the compound powder of jalap was given, which moved the bowels freely. 11 P. M. A gallon of warm water was injected against the inner border of the os. *May 16th*, 3½ A. M. No dilatation. Douche repeated. 8 A. M. No effect; a third douche. The catheter was passed several times during the night, and one ounce of urine drawn at one attempt, and not more than half an ounce at the others. All the specimens albuminous. 11.30 A. M. Fourth douche. 1 P. M. Os slightly dilated, admits the ends of two fingers. Dr. Elliot saw the patient at 2 P. M. with the class, and advised the douches to be continued. 3 P. M. Fifth douche. 6.45 P. M. Sixth; os now dilated to the size of a dollar, and still rigid. 10.15 P. M. Dr. Elliot saw the patient, and as the os was dilating very slowly under the douches, he introduced, at 10.45, the smallest-sized Barnes's dilator, and injected several syringesful of warm water, and increased that quantity so soon as the cervix would permit. The urine has been carefully drawn by the catheter during the whole day, and not more than six ounces have been secreted during the last twenty-four hours. *May 17th*, 1.15 A. M. Dilator removed. Cervix dilated to 2½ or 2¾ inches in diameter. At this time the membranes were beginning to protrude from the cervix; and as the cervix and presenting part were so high, it was hoped that time and the labor-pains would bring them better within reach. The presenting part can be reached with difficulty. It is not the head, and is probably the breech; though the exact differential diagnosis between that and the shoulder cannot be made. At 4 A. M. Dr. Taylor also saw the patient. The os was now contracted and œdematous. The largest-sized Barnes's dilator being now introduced, and injected with eleven syringesful of warm water, the cervix

was fully dilated within a quarter of an hour, when Dr. Elliot ruptured the membranes, and recognized the breech of a male child. The labor was then allowed to progress. Two ounces of albuminous urine drawn by the catheter. The urine has been carefully and repeatedly examined microscopically, but no casts can be found. 11 A. M. The breech now appears at the vulva. The body having passed without traction, the arms were found extended above the head, and were drawn down by Dr. Elliot, in presence of the class. In this manipulation, the integument was stripped from the putrid body of the child. Previous to delivery of the head, attention was called to the great size of the abdomen, which suggested a suspicion of twins; but when the head had been delivered by traction, it was found to be greatly enlarged by fluid between the scalp and cranial bones; and this was followed by a gush of a little more than a quart of liquor amnii. The placenta came away in ten minutes, and was very large, weighing two pounds and eleven ounces. It appeared fatty, but was not so recognized by the microscope. After delivery, the uterus contracted well. Pulse, 90; respiration, 44. Extra diet ordered to be continued, and the abdomen to be enveloped in oiled silk placed beneath the bandage. 3 P. M. Passed a pint of urine. 6.30 P. M. Pulse, 80; respiration, 36; skin moist; no pain over uterus or abdomen; no headache. *May 18th*, 10 A. M. Has slept well; pulse, 76; respiration, 20. 1 P. M. Has passed about a pint of albuminous urine since 3 P. M. yesterday. Some inflammation of fauces has appeared. 9 P. M. One pint of urine. *May 19th*. Pulse, 120; respiration, 30. Milk appearing. Lochia normal. 6 P. M. Pulse, 130; respiration, 38. Tenderness over uterus and abdomen, tympanites. Ordered turpentine stupes, and ten drops of the tincture of belladonna every three hours. *May 20th*, 10 A. M. Has slept well. Pulse, 100; respiration, 32; no pain or tenderness over abdomen. Urine normal in quantity. 6 P. M. Pulse, 108. Eighth of a grain of the sulphate of morphia

every three hours. Aphonia. Some laryngitis. *May 21st*, 10 A. M. Pulse, 100; respiration, 22. A diphtheritic patch on posterior pillar of fauces. This was touched with a strong solution of tannin in glycerine, and the neck was wrapped in flannel soaked in laudanum and hot water, and covered with oiled silk. *May 23d*. Pulse 80. Throat symptoms much relieved. Urine, when drawn by catheter, still albuminous. *May 28th*. Lochia have ceased. Transferred to medical wards. Continued to do well, and discharged at the customary time.

The autopsy of the child showed a large amount of fluid between the scalp and cranial bones; and the presence of numerous yellowish points in the liver, with the following microscopic appearances, as observed by Prof. A. Flint, Jr., M. D. Liver-cells rather smaller than usual, not otherwise abnormal. No increase in amount of fibrous tissue in that organ. Some of the little bodies called cytoblastions, not affected by acetic acid, and supposed to be characteristic of syphilitic formations. Still, Dr. F. scarcely considered them to be sufficiently numerous and distinct to make a diagnosis of syphilitic degeneration, from the microscopic appearances alone.

Dr. Southack, the curator, and Dr. Delafield, the assistant curator, from examination of the specimen and the microscopic appearances, were confident that the liver was the site of syphilitic deposit.

Under the microscope, the placenta presented nothing abnormal.

Puerperal Albuminuria and Eclampsia.—The cases of Bridget Conway and Annie Hannegan (Nos. 1 and 2) illustrate some of the risks of the puerperal state on which a flood of light has been thrown within the last twenty years. The greatest advantage gained from our knowledge has been in prophylaxis.

There is nothing more striking in the recent progress of pathology, than a comparison of the results for which we

look in the autopsy of women dying from puerperal eclampsia nowadays, and those which were sought for before the coincidence of puerperal albuminuria and eclampsia had attracted attention. Instead of suspecting the brain, we now study the kidneys. That we have reached the *ultima thule* of our investigations is not even imagined, but our successors must recognize that we have made a great step in advance, and that we are working in the right direction. The pathology of the blood remains comparatively unexplored, and the relations of that fluid, and of the nervous system itself, to the proximate cause of the convulsions, as well as the influences of other toxæmic conditions, offer wide fields for exploration.

But meanwhile we enjoy great privileges in the study and treatment of these cases; and though the mortality must continue large, we have the satisfaction of knowing, and of proving, that such a result is unavoidable.

Frequency of Albuminuria in the Puerperal State.—

It is a rule in Bellevue that the urine of all pregnant women admitted into the waiting wards should be examined; and albumen, at least, is always looked for.

During the month of April, 1867, Dr. Forman examined the urine of sixty-eight pregnant women, with the following result: Albumen was only found in two specimens, both of which were from primiparæ. One of these specimens (Case 1) contained large granular casts, and the patient died soon after confinement. The other specimen was taken from a woman who left the hospital before her confinement, and passed from under observation. Some few small hyaline casts were found.

During September, 1867, Dr. W. R. Fisher, house physician, examined the urine of fifty-two pregnant women for albumen, without finding any.

Report of examination of urine of pregnant women admitted to Bellevue Hospital during the month of May, 1867. Dr. Mead, House Surgeon.—Lizzie Cross, albumen and fatty

casts. Discharged before confinement. Ellen McMahon, albumen, and one waxy cast, found by Dr. Flint, Jr. Safely confined. Mary Smith, albumen, no casts. Delivered safely, May 28th. Celia O'Neil, albumen, granular and large hyaline casts. Died of puerperal convulsions. Annie Hannegan, albumen, no casts. (Case No. 2.) Lizzie Bowns, albumen, no casts. Discharged before confinement. Jane Miller, albumen and granular casts. Delivered July 3d, with no trouble whatever; convalesced favorably. Ellen Reeves, albumen, no casts. Delivered June 9th. No unpleasant symptoms during or after confinement. The urine of thirty-seven other women was examined chemically, but, as no albumen was found, further examination was not made.

Dr. William A. Lockwood, house surgeon in Bellevue, reported to me the examination of the urine of fifty-eight women in a service extending from April 26th to May 23d, 1865. The specimens were all examined for albumen with heat and nitric acid, as is the rule. They were examined microscopically for casts, and for sugar, by Horsely's test, and the specific gravity and reaction taken.

In every instance the result for albumen, casts, and sugar, was negative. In one of the women, however, albumen subsequently appeared in the urine at the time of confinement. This patient had two convulsions, and subsequently did well. All the other patients had easy labors with but one exception, which was tedious.

The specific gravity of one specimen was 1003 and one 1028; forty-two between 1010 and 1020, the great majority verging on 1020; fourteen between 1020 and 1025.

Dr. Everett, house physician in Bellevue, examined the urine of fifty-two pregnant women in the waiting-wards during July, 1865, with the following result: Reaction neutral in three, alkaline in one; acid in the rest. Albumen observed in four specimens; three primiparæ, and one a multipara. In these the specific gravity was very satisfactory. One of these patients presented hyaline and granular

casts, and another, granular casts. The urine of another patient without albuminuria presented hyaline and granular casts. Sp. grav. 1022.

During Dr. Corey's service, in October, 1866, he examined the urine of fifteen waiting-women in Bellevue, of whom eight were primiparæ. One specimen was slightly albuminous from a patient in her second confinement, and one from a primipara was albuminous, but when the bladder of the same patient was emptied by the catheter, no albumen was present.

The Bulletin of the New York Academy of Medicine, for October, 1862, contains a report of my remarks on the relations of albuminuria to pregnancy, the topic assigned to me in the debate on the valuable paper of Professor Alonzo Clark.

The report of the examination of thirty specimens obtained for me in Bellevue by my house physicians, *Drs. Nealis and Mola*, is there presented, the examinations being respectively made by Professor Clark, Professor A. Flint, Jr., and Dr. W. H. Draper; ten having been sent to each.

TOTAL.

<i>Age.</i>	<i>Pregnancy.</i>
Below 20—Five.	Primiparæ—Sixteen.
Between 20 and 30—Twenty.	Multiparæ—Fourteen.
“ 30 and 40—Five.	

Specific Gravity.

Between 1010 and 20—Fifteen.
“ 1020 and 25—Twelve.
“ 1025 and 20—Three.

Reaction.	Albumen.	Casts.	Crystals.	Spores.	Pus.
Dr. Clark's not stated. Acid, 18. Alkaline, 1. Neutral, 1.	Four cases, of which two depended on pus and one presented a trace.	One epithelial.	Oxalate of lime—nine. Uric acid, four. Triple phosphate, two.	Torulæ, three. Penicilium glaucum, four.	Four.

While Resident Physician of the Asylum, I carefully tested with heat and nitric acid the urine of one hundred and twelve pregnant women. The urine was mostly obtained from out-patients, and in nearly every case passed in the asylum, where these patients came for tickets to assure them care in their labor. Thus the chances of error were reduced to a minimum, and the probabilities of the presence of albumen increased by the hour of the day when the urine was passed. In only two cases did I find albumen.

These were primiparæ, and living in the asylum. Their legs and eyes were somewhat swollen. They were put on the use of saline cathartics, and had natural labors. In one case the albumen had disappeared before labor; the other was not examined a second time.

These results are recorded in the *New York Medical Times* for July, 1853.

Results.—It appears, therefore, from these examinations of the urine of four hundred and thirty-seven pregnant women, that albumen has been found in twenty-three cases. In three of these, however, it was distinctly proven that the presence of albumen depended on the admixture of pus. Deducting these, we have a ratio of one in nearly twenty-two cases.

It is to be remembered, however, that a very large proportion of these women were primiparæ, those especially liable to the complication.

Relations of Albuminuria to Pregnancy.—In using the word albuminuria in its general signification, and considering it both as a symptom, and as an exponent of the various morbid conditions in which that symptom may be present, its relations to pregnancy may be thus stated:

Pregnancy presents the great clinical peculiarities of being—

1. A special excitor, in very many cases, of albuminuria which had not previously existed.

2. Of materially developing those morbid conditions in

many chronic cases, in which they might possibly have remained latent for a much longer period; or in which they might have disappeared without such excitation; thus offering an inevitable increase of risk, analogous to those which we seek to avoid when albuminuria is uncomplicated with this state.

3. Albuminuria in pregnancy is not only liable to involve all the dangers associated with its existence in other conditions of the system, but, in addition, entails a special liability to some, as convulsions, or mania.

4. It may happen that the unfavorable influences of albuminuria, after remaining latent during pregnancy and labor, may only make themselves felt when it was hoped that the dangers of the puerperal state had passed.

5. The complications of albuminuria may demand the consideration, or prompt performance, of all obstetrical operations, both during labor and before labor shall have commenced.

6. Pregnancy presents the special grave peculiarity of exposing two lives to the dangers connected with the occurrence of these phenomena in one subject.

7. Experience encourages us to hope that the continued careful study of this subject will enable us greatly to diminish the dangers which we know to be associated with these conditions of the kidney.

It is evident, therefore, that it is of vital importance that the urine should be examined microscopically and chemically during pregnancy, and that no precaution should be omitted which may guard against error.

Cystitis, acute and chronic, and leucorrhœa, may cause such admixture of pus and blood with the urine, as to furnish albumen, though its presence, under these circumstances, may not indicate the risk of toxæmia. Hence, in cases of doubt, including all those in which the specific gravity is good, and there are no microscopic phenomena, the urine should be drawn with a clean catheter.

The tendency of the urine of pregnancy to become rapidly alkaline should be remembered, and the reaction should always be estimated before heat and nitric acid are used.

A careful microscopic examination of the urine should always be made, it having been preserved for that purpose in very clean vessels. All the phenomena that are observed in all cases of renal disturbance and disease, may be met with in pregnancy, and the difficulties which attend their recognition in all other conditions may then be encountered.

My memoranda present me with illustrations—

1. Of cases where I have regretted that thorough microscopic examination had not warned me of the likelihood of more advanced disease than was suspected from the mere presence of some albumen and the mildness of the attendant premonitory symptoms, if, indeed, they existed at all.

2. Of cases wherein certain microscopic appearances, as blood-corpuscles coexisting with pain on pressure over the kidney, have furnished important suggestions for treatment.

3. Of cases in which, no albumen being present, the microscope alone has detected the evidences of advanced renal disease.

4. Of cases wherein cursory examination having failed to present evidences of renal disease, the autopsy has disclosed conditions which a more thorough study would probably have recognized, and brought to bear on the prognosis.

5. Of cases in which repeated examinations during the first eight months of pregnancy having disclosed nothing, albuminuria and convulsions subsequently occurred, with serious consequences.

It is, however, very gratifying to remember that the urine of pregnancy may present all those varieties and numbers of casts which are recognized in every stage of Bright's disease, but that, after a fortunate labor, these conditions may disappear entirely, and the patient remain as well as those who have presented similar appearances after scarlatina and other acute diseases.

Hence the difficulties attending the prognosis are increased by these facts, although they enable us to give a warmer coloring to the future prospects of a patient than would otherwise be possible.

They stamp the consideration of the induction of premature labor in these cases with a strong approval, since the most propitious time for these favorable changes is after the close of pregnancy.

They force us to remember that, however favorably one of these bad cases may have terminated, an individual predisposition to serious renal disease has been begotten; that future pregnancies demand redoubled watchfulness, and more frequent examinations of the urine.

Primiparæ are more liable to puerperal eclampsia than multiparæ, but it is probable that the danger is greater for multiparæ. Some multiparæ have suffered from puerperal eclampsia before, and others have been threatened therewith, and hence the acquired predisposition argues an increased risk. Moreover, it is my conviction that fatal cases of eclampsia in multiparæ often occur in patients who were the subject of unrecognized albuminuria in a former labor.

It is probable that multiparæ are more liable to apoplectic effusions from their age, and the increased clinical probability of fatty degeneration of vessels.

Prognosis.—Patients must not be hastily told that their condition is hopeless, whatever the microscopic and chemical results of the examination of their urine may be. The consequent alarm or discouragement is always prejudicial, and the result may not justify the prognosis. Such hasty opinions belong to the beginnings of knowledge. Just as we now know that diseased conditions of the heart and lungs, recognized by auscultation, may permit a good expectation of life in many cases which the early auscultators would have decidedly condemned; so have we reached that time when a greater familiarity with the amount and number of diseases of the kidneys, and their compatibility with recovery,

or, at least, with life, should teach us caution in our prognosis. Again, we cannot tell in the individual case but that the alarming symptoms observed in the urine may not betoken temporary conditions, or conditions of disease limited in extent, or affecting only one kidney, as were observed in the following case :

CASE 3.—*Post-mortem Cæsarean section ; child found dead : interesting condition of kidneys.*

I was called suddenly to an out-patient of the Lying-in-Asylum, a primipara, with puerperal convulsions. She had died before my arrival, and the physicians had just left. The husband consented to allow me to open the abdomen, and I made the Cæsarean section in the mesian line from below the umbilicus. The operation presented no special observation of interest beyond those which were to have been anticipated—child dead, first cranial position—but the kidneys differed greatly from each other. They were equal in size, but one appeared quite healthy, and the other the subject of advanced Bright's disease. Several gentlemen had an opportunity of seeing them, and I gave one to Dr. Gouley, and the other to the late Dr. Charles E. Isaacs, and their microscopic examinations fully confirmed the opinions previously formed. The relation of such a pathological condition to cases of Bright's disease, where the urine might present appearances inconsistent with the duration of the patient's life and condition of health, forms an interesting subject for reflection, and is one of the considerations which complicate the difficulties of our prognosis in the diseases of the kidney grouped under the name of Bright's disease.

I cannot write the name of Dr. Isaacs, without offering my tribute to the warmth of his friendship, the unselfishness of his character, the purity of his nature, and the guilelessness of his heart. His great attainments, and the brilliancy of his original investigations, are the least among his claims to the recollection of those who could appreciate the gentle,

unaffected simplicity of a life clouded by many trials, and who can feel that he loved them.

Anasarca.—The cases of Bridget Conway and Annie Hannegan (Nos. 1 and 2) show the exemption from eclampsia fortunately met with under peculiarly predisposing circumstances.

Perhaps the extensive anasarca, and peritoneal effusion, in the case of Bridget, played a prominent part in conducing to this result. It is thought by some that this dropsical effusion may relieve the blood of its toxæmic principles, and so save the patient. Perhaps the poison, which might have struck the nervous centres, expended itself on the peritoneum. These patients often display marked tendencies to puerperal inflammation.

In the case of Annie Hannegan, we have the right to believe that she was saved by the induction of labor, and the subsequent increased secretion of urine. A clinical fact also very marked in the case of Bridget.

Free Secretion of Urine.—This is one of the phenomena for which we look most anxiously in many cases of scanty secretion, or of large dropsical effusion. The pumps must work, or all is lost.

In the following cases, the danger from continued suppression of urine after delivery is illustrated.

CASE 4. — *Cardiac disease; œdema of lungs; albuminuria; convulsions; forceps; death of mother subsequently from suppression of urine; death of child, and autopsy.*—Dr. Chas. H. Ludlum, House Surgeon.

Eliza Hamgin, aged twenty-three, Scotch, unmarried. Labor commenced February 19, 1867, at 4 A. M. Ten days before, she had complained of diarrhœa, when the physical signs of mitral regurgitation and œdema of the lower lobes of both lungs were recognized. Legs markedly cedematous. Urine very markedly albuminous, with numerous

hyaline casts. Free catharsis was promoted by the compound powder of jalap. Under this treatment she improved. The œdema of the lungs and legs diminished, and she could walk and breathe comfortably. The first stage of labor was natural; pains strong, and os uteri dilating freely, so that at 12.30 P. M., when the membranes ruptured, it was almost fully dilated. The pains continuing effective, at four o'clock in the afternoon the head had reached the inferior strait. From this time until seven there was no advance, and as convulsions threatened, I went for Dr. Barker. During my absence she had a convulsion, which lasted ten minutes. Dr. Barker being unable to come, Dr. Elliot came without delay, applied forceps, and delivered at once. The occiput occupied a position almost transverse, but was slightly rotated, by Dr. Elliot's hand, so as to bring it opposite to the left acetabulum. The placenta came away in thirty minutes, the uterus remaining firm and contracted after its expulsion. The child was a girl, weighing nine pounds, and was living, but, after an hour's persistent efforts at resuscitation, could only be made to breathe very imperfectly; the cry being especially feeble. Color persistently good. It died six hours after delivery. The patient rallied promptly from the chloroform, had no more convulsions, but died comatose on the 22d, fifty-six hours after delivery, having only passed a few ounces of urine after her confinement.

There was no autopsy of the mother.

Autopsy of the Child.—Well formed. No blueness of surface. Brain and membranes normal. The lungs with the heart floated in water. Small islets of atelectasis scattered through both lungs. Heart.—Foramen ovale, open. Valves normal. Aorta.—This vessel gave off branches to the upper extremity, and after giving off the left subclavian, it terminated in the pulmonary artery. At the junction with the pulmonary, its size was a little more than one-eighth of an inch in diameter. The pulmonary artery gave off the right and left branches, and then received the aorta half an inch

above their emergence. At this point it was somewhat contracted in size—a little more than a quarter of an inch in diameter. From this point the thoracic aorta was distributed normally.

The blood of the child was examined for urea by the assistant apothecary, and urea detected by Liebig's process.

CASE 5.—Puerperal eclampsia: twins; douche; forceps; version; suppression of urine.

Ann Winslow, a primipara, strongly built, aged twenty-eight years, entered the Lying-in Asylum during my service as resident physician, in December, 1853. When I first saw her she had drawn her mattress to the vicinity of the stove, and was reclining thereon in an exhausted condition. Her face was puffy and cedematous, with general anasarca, and she complained greatly of diarrhœa. Her urine was loaded with albumen. She was revived with stimulus, and her diarrhœa brought under control. Convulsions were anticipated.

December 30.—As her strength had now rallied, six ounces of blood were taken from the lumbar regions by cups.

December 31.—Sinapisms ordered to lumbar regions. *Vespere.* Os commencing to dilate. Slept well.

January 1, 1854, half-past eight o'clock, A. M.—Very severe convulsion, followed, in half an hour, by a second, equally severe, with no interval of consciousness; hands and arms livid; tongue bitten; four ounces of blood taken from nape of the neck and lumbar regions; consciousness then returned; os very rigid; pains inefficient. One gallon of warm water injected against the uterine orifice, in the presence of Drs. Beadle and Metcalfe, physicians to the asylum. Five o'clock P. M.—A third convulsion, followed promptly by a fourth, with no interval of consciousness, but the convulsions less violent, and recovery more prompt. Os unchanged.

Half-past eight o'clock p. m.—Fœtal heart scarcely distinguishable. Seven drachms of the tincture of ergot given, followed by good pains for three hours, and then a quiet night.

January 2, nine o'clock a. m.—Os a little more dilated; fœtal heart beating. Three gallons of warm water injected, in a full stream, with Higginson's barrel syringe, followed by rapid dilatation of the os. Two o'clock p. m.—In the presence of Mr. Hunter Adam, an Edinburgh surgeon, I delivered her, without difficulty, of a still-born child, with forceps; and, finding the left arm of a second child at the pelvic brim, withdrew it, living, by the operation of version. No trouble with placenta.

The patient was now kept warm, and gentle saline cathartics, with diaphoretics, administered. She had a good "getting up," and ten days afterward was sitting by the stove, bright and happy.

On the following day she had a slight convulsion, and never again regained consciousness. She lived for two or three days, with scarcely any secretion of urine. Gin, beef tea, and Hoffman's anodyne, with strong counter-irritation, were freely used, but with no effect.

The post-mortem displayed an advanced stage of Bright's disease of the kidneys (white).

The autopsy was witnessed by Drs. Isaacs and Gouley.

Jactitation; Restlessness.—These patients often display marked and peculiar restlessness; often great jactitation; and they are specially prone to suffer from those influences which we sum up in the emphatic word "shock." These facts are well shown in the following remarkable case.

CASE 6.—*Albuminuria; uterine fibrous tumors; early rupture of membranes; rigid os; douche; chloroform; incision of cervix; forceps.*

Mrs. —, a primipara, aged 26; well built; very cheerful; and believed by herself and her friends to be in

good health; came under my care on the 20th of November, 1857. Menstruated for the last time February 28th. I recognized at once the evidences of albuminuria. Extremely puffy face; hands, arms, and feet appeared swollen, though they would not pit on pressure; constant headache; eyesight disturbed by flashes of light; *muscæ volitantes*, and blurred outlines; bowels confined; thought that the quantity of urine had diminished somewhat of late. Some of the urine passed on the following morning became almost solid by the application of heat and nitric acid. Microscopical examination neglected. Ordered to take Tarrant's Seltzer Aperient, to be cupped over the kidneys, and to send some urine for examination on the 27th. At this time I requested the husband to call at my office, where I tested some of his wife's urine in his presence, compared the results with some healthy urine, and mentioned my apprehensions of puerperal convulsions.

On the 29th, received two specimens of urine, the one passed on the morning of the 28th, after a quiet night, the other on the 29th, after a very restless night, in which, to use the husband's words, "there was an apparently uncontrollable emission of water mixed with blood." This, which was, without doubt, liquor amnii, had probably become mixed with the specimen of the 29th, as it evidently contained blood. The specimen of the 28th contained less albumen than the one previously tested.

On visiting her, found that the headache and amaurotic symptoms were persistent, and that so much effect had not been produced on the bowels as was desirable. She was very cheerful, had no pain, face decidedly less swollen: left after desiring that she might have a cathartic, and that the nurse should be sent for, as I anticipated labor.

Labor.—At 3 A.M. of the 30th, was summoned, as the nurse thought that the child would soon be born. Found her with extremely powerful uterine contractions, which, then and later on, would last thirty, thirty-five, and forty

seconds by the watch; liquor amnii dribbling away constantly; patient excited, very restless, and bearing down with her pains; os uteri very little dilated, rigid, and less dilatable than any which I can call to mind; head presenting, but position not then determined; foetal heart, however, decidedly to the right side below the umbilicus, and concluded that the position was the 2d of Naegele; which was subsequently ascertained to be the fact. Pelvis well formed.

On examining the abdomen, found a hard tumor at about the junction of the left iliac and umbilical regions. It seemed about the length of the forefinger, with a firm pedicle. This, on examination, I decided to be a fibrous uterine outgrowth, and mentioned to the husband and others the likelihood of another on the posterior wall, as these are very rarely single.

The uterine contractions continued as vigorous as ever, slowly forcing the head and cervix toward the pelvic cavity, but without any effect on the os; so I used the warm-water douche, and repeated the same three times during the day, but with no effect.

Told the patient that I would give her chloroform, but would not promise that its influence should be kept up until the labor had terminated. In the afternoon she consented to take it for two or three hours, during which time she slept peacefully, with no abatement of the uterine contractions.

At about half-past seven in the evening, the pulse, which had been rather slow, was becoming somewhat excited; bodily and mental restlessness extreme; uterus long since drained of its waters, with the os as undilatable as it had been for twenty hours, down in the cavity of the pelvis, and slightly lacerated on the left side; foetal heart beating; perineum rigid.

I then told the husband that this had gone far enough; that fortunately, and probably from prophylactic treatment,

convulsions had not occurred, but that the albuminuria still overshadowed her; that the rigidity of the os was such as clearly, in my judgment, to indicate the propriety for its division (this was ten years ago, when we had not the dilators); that, considering the position of the head, it would probably be better to terminate the labor with forceps, and suggested a consultation. Professor Barker then became associated with me in the management of the case, and saw the patient at about half-past nine, when she was well under the influence of chloroform. He recognized every point which had been made, and warmly approved the measures proposed.

Dr. Schermerhorn having kindly given his assistance also, I divided the cervix with Simpson's uterotome on the right side, opposite the slight laceration referred to. Dr. Barker agreed with me in thinking that the forceps might be introduced through this opening, which was about the same as in a case of incised os recorded by Dr. I. E. Taylor in the *N. Y. Medical Times*.

The elevation of the head demanded the use of long forceps, and the head, promptly grasped, did not slip during delivery. After an ineffectual attempt to rotate the occiput anteriorly, I delivered a living female child in obedience to the rules for this presentation, and with the usual difficulty. Unfortunately, the patient being drawn upon the bed, unexpectedly to myself just at the moment when I was about to disengage the face, a laceration of the perineum occurred, which involved a few of the lower fibres of the sphincter.

Traces of the forceps on the head of the child were very slight, and after plunging the child in hot and cold water alternately with frictions, slapping, and occasional resort to the "ready method," it cried loudly, and looked well, though thin and puny.

The child presented some paralysis of the portio dura of the left side from pressure of the forceps, which, however, wore away. As Chailly says: "Tout le monde sait que cela

n'a aucune importance, que quelques jours suffisent pour faire disparaître cet accident." A wet-nurse was procured, but the baby pined and dwindled away, dying when but a few days old.

After delivery the diagnosis of the uterine tumor was shown to be correct, while another and a larger one was found springing from the posterior wall, and met with by the right sacro-iliac synchondrosis. About an hour after delivery, the uterus contracting and then lazily relaxing over the placenta, entirely retained within its cavity, I requested Dr. Barker to ascertain if there was any cause for delay. He found it attached to the anterior wall, near the fundus, and partly adherent, necessitating careful detachment. He removed it wholly, membranes and all, while I maintained tonic uterine contraction, with my hand over the fundus.

Drs. Barker and Schermerhorn now left me, as the mother and child were doing well, and I remained by the bedside for some time longer with my hand over the fundus, to guard against the possibility of uterine hemorrhage.

Alarming Symptoms.—At last, when about to apply the binder, there came a sudden and alarming change in her expression, pulse, temperature, and respiration. The last was slow, jerking, and abdominal, deciding me not to apply the binder, lest it should interfere with the action of the diaphragm; the pulse was alarmingly feeble and slow; the face and extremities very cool; and the general expression awakened grave anxiety in my mind. The uterus remained contracted, and no hemorrhage occurred.

Consultation.—Having plenty of assistants, made one hold up both legs, and two others the arms; the head was placed on a level with the trunk; ordered brandy and water with strong frictions, while I kept my hand firmly over the fundus to insure against the possibility of hemorrhage. My assistants could not give the brandy without provoking paroxysms of coughing, and so sent my carriage instantly

for Dr. Barker, and, as he was not at home, my friend, Dr. George A. Peters, was brought to the bedside without a moment's delay. He fed her successfully with brandy, and she rallied. After these dangerous symptoms had passed, we talked to her of her child, and implored her to calm her restlessness, and keep quiet, but with little avail, for she would flounce from one side to the other, throwing her pelvis clear from the bed.

Dr. Peters stayed with me till 3 A. M., giving her brandy and milk-punch, and she continued to improve. Her pulse was good, her intelligence perfect, but her skin was cool and her restlessness very great.

At this time we thought that five drops of Magendie's Solution might calm her excitement, and it was given, when Dr. Peters withdrew. Remained with her till nearly 8 A. M., December 1st, during which time she had some refreshing naps, though I could not say that the morphine had produced any perceptible effect. The uterus remained well contracted, and no hemorrhage had occurred: gave her seven drops more, and left her, after strongly enjoining the necessity for quiet.

Relapse.—By ten o'clock I saw her again just after a sudden change had occurred similar to that of the previous night. She was perfectly intelligent, very much excited, lying on her left side, and imploring me to allow her to change her position. Scarcely had I promised to lift her on her back, when she threw herself completely on her right side, raising herself on her heels and shoulders, and her heart never seemed to recover its force from that moment. She died immediately after having vomited some brandy during the prolongation of the agony. With her last words she complained that some brandy seemed to have gone the wrong way. No hemorrhage had taken place. The uterus was strongly contracted.

Post-mortem.—In view of the conditions observed at the autopsy, the temperature is important. According to the

register of Mr. E. Meriam the thermometer marked on December 1st, at one P. M., 50°; two P. M., 52°; three, 50°; four, 48°; five, 45°; six, 45°; seven, 42°; eight, 40°; nine, 40°; ten, 39°. No observation from eleven P. M., December 1st, till five A. M., December 2d. Six A. M., 32° (white frost); seven, 32°; eight, 34°; nine, 36°; ten, 40°; eleven, 42°; twelve, 42°.

The examination was made by Dr. Geo. A. Peters and Prof. W. H. Van Buren, twenty-seven hours after Mrs. —'s death. The body had remained on the back in a room without fire, and with the windows open.

So great a change had taken place in this time as to render the body almost unrecognizable. The face was greatly swollen by emphysema, and the surface of the body down to mid-leg and to the wrists crepitated in the most marked manner. No post-mortem discoloration of the abdomen, but post-mortem lividity over the back, and greenness of decomposition with bullæ over the lateral aspects of the trunk, especially over the thorax. On opening the abdomen there was so great an escape of gases, evolving a strong odor of sulphuretted hydrogen, that we were obliged to open doors and windows. Interior of body yet warm.

Head not examined, by request. *Larynx* and *trachea* normal. Nothing of interest in the *lungs*. Both *pleuræ* universally adherent. *Heart*, normal in size, contained no air in its cavities; no clot in the pulmonary artery (such as terminated the life of the Duchess de Nemours); apparently fatty, with patches of atheroma along the aorta. *Pericardium* normal. *Blood* coagulated.

Microscopic examination of the *heart* by Prof. Alonzo Clark and Dr. C. E. Isaacs. Studded with patches of atheroma externally and along the aorta. Numerous whitish spots on surface and in muscular tissue, which Dr. Clark supposed to be purulent deposits at first; but, on examination, no pus was found, but granular matter with globules of oil. Muscular structure had not undergone fatty degen-

eration, but very soft, the least touch of the scalpel producing a whole microscopic field of fragments.

Abdomen.—No peritonitis, or undue amount of fluid in the peritoneal cavity; sub-peritoneal cellular tissue everywhere emphysematous, dissecting off large blebs of peritoneum. On greater curvature of stomach, cellular tissue around gastro-epiploic vessels, so aërated as to simulate distension of the vessels. The *intestines* moderately distended with flatus, crepitated everywhere from emphysema of their sub-peritoneal cellular tissue.

Liver.—Crepitated everywhere to the touch, *café au lait* in color, and so friable as readily to break down in the necessary manipulations for removal. Fatty under the microscope.

Spleen.—Apparently normal, except similar crepitation.

Kidneys.—Excessively soft, crepitating to the touch; their capsules dissected by the emphysema. No marked appearance in one not found in the other.

The late Dr. C. E. Isaacs furnished me with the following memoranda of their condition :

“In the hottest weather of summer I have often made post-mortem examinations of subjects which had been dead nine or ten days, and wherein the organs were not as much advanced in putrefaction as in the present instance. The liver, kidneys, and uterus crepitated strongly under pressure, from the presence of gases among their tissues. The capsule of the kidney was perfectly loose, and separated with the slightest touch. On separating it, the cortical surface exhibited numerous elevations and depressions, as in the cirrhotic kidney. The cortical substance was very much softened, and easily broken down on slight pressure, and gave the same sensation as the lung when this is cut into by the scalpel. On microscopical examination, the kidneys were found in an advanced stage of Bright’s disease. The Malpighian bodies were of various sizes, some of them very small. The fibrous ring of the matrix surrounding them was

much thickened. The capillaries of the Malpighian tuft contained numerous oil globules, as did also the minute arteries of the cortical substance. The tubes were generally, and in many instances entirely, denuded of their epithelial cells; many of which were disintegrated, or resolved into granular matter. In the numerous specimens which I examined, I could not find any thing like healthy structure in the cortical portion. It is an interesting question how far the diseased state of the kidney, and the consequent retention of the elements of the urine in the blood, contributed to the rapid decomposition of the different organs."

Dr. Clark corroborated the statement of Dr. Isaacs, and added that many of the cells in his specimen were loaded with fat. Dr. Clark had also made the independent suggestion that the excessively rare degree of softening observed was probably due to some ante-mortem septic influence with which we are not familiar.

Uterus.—Firmly contracted, and emphysematous. Removed for examination, together with heart, kidneys, and portion of liver, when they were also submitted to Professor A. Clark and Dr. C. E. Isaacs, and shown to the Pathological Society.

The *uterus* displayed two sub-peritoneal uterine out-growths, fibrous in character, irregularly shaped, and pediculated; the smaller one, situated on the anterior surface, to the left of the mesian line, about midway between fundus and cervix. The other, posteriorly, to the right of the mesian line, near the junction of the body and cervix. The former measured two inches in length, and three-quarters of an inch in width; the latter four inches by two and a quarter. The fundus anteriorly presented a smaller fibrous tumor, the size of a split white bean.

On examining the os uteri from within the vagina, no appearances of sphacelus, nor of laceration extending to peritoneal coat, were observable. Traces of the incision were distinguishable, as well as some other slight solutions of con-

tinuity, but none of them differing from what may frequently be observed after parturition. On section of the anterior wall through the mesian line, the uterus was found firmly contracted, the cavity contained a clot which was estimated to weigh less than an ounce.

On careful examination, the internal surface presented no appearance whatever of injury.

Microscopical Examination by Drs. Clark and Isaacs.—Fibres of inner surface certainly undergoing fatty degeneration. No evidence of any inflammatory condition.

CASE 7.—*Albuminuria ; miscarriage ; jactitation.*

In another case I witnessed this jactitation to a painful extent. A young primipara applied to me to take charge of her in the approaching confinement. She was then nearly three months gone, and perfectly healthy in appearance. She miscarried, however, soon after, and was taken care of by another physician, and some days subsequently I was sent for in consultation. She presented the most painful restlessness, with rapid and feeble pulse, and suffered from intense coldness of the legs and arms. The phenomena were not unlike those of hysteria, but the urine was found to be loaded with albumen, with waxy casts, and she continued to sink, and finally died without eclampsia, retaining her consciousness till near the end of her life.

In the following case the restlessness and excitability often observed in these patients was singularly well marked.

CASE 8.—*Puerperal eclampsia ; albuminuria ; efforts at manual dilatation of cervix ; douche ; Barnes's dilators ; still-born putrid child delivered by manual traction ; marked restlessness.*

On the 29th of July, 1864, Dr. John C. Hutchison sent for me to see Mrs. —, of Brooklyn, aged thirty-six. She

had thrice miscarried at the second or third month, and was now near the eighth month of gestation. She was very stout, weighing about two hundred and fifty pounds; a hearty, healthy-looking woman of a very nervous temperament. With the exception of the miscarriages referred to, she had always been a healthy woman; but about two months ago she presented evidences of œdema of the face and upper extremities, which led the doctor to make several examinations with heat and nitric acid for albumen, but none could be found. No microscopic examination made. Secretion normal in quantity. She was kept under the use of saline cathartics, and not allowed to use any meat. Six leeches were applied over the kidneys. Warm hip-baths. During the night of the 26th and 27th the patient was extremely restless. Dr. Hutchison saw her at seven P. M., 26th; she had just returned from a long ride, and was considerably fatigued. Complained of pain in nucha; headache did not occur until about three hours subsequently. At four A. M. of the 27th she fell into a well-marked epileptiform puerperal convulsion, during which she bit her tongue. Consciousness returned; vs. ad $\bar{x}$ x. and a mercurial cathartic, although there had been some diarrhœa lately. At five A. M. another convulsion, and between that hour and nine P. M. she had thirteen convulsions in all. Her consciousness would return in the intervals, though she was not entirely rational. Very nervous and excited. Jactitation most marked and incessant. It was endeavored to anticipate the convulsions by the use of chloroform, and Dr. McClellan was brought in consultation. After his arrival an effort was made to dilate the cervix uteri manually. The cervix was high up, long, and entirely undilated. With care and time the ends of three fingers were introduced, but it was not further dilatable. During the night of the 27th she was kept for the most of the time under the influence of chloroform. On the morning of the 28th several convulsions were arrested by chloroform. Bowels freely opened. Urine abundant and

sometimes discharged unconsciously. No further dilatation of the cervix, and not a labor pain. Occasionally conscious. Douche of warm water within the cervix once for twenty minutes. Complained of epigastric pain and vomiting, which were relieved by a drachm of the bicarbonate of soda. Great jactitation. Complains now, and has before, of a "blur" over the eyes. 29th. Extremely nervous, much jactitation, but not to so great an extent, as the patient is weaker. No convulsions, as their approach is anticipated by chloroform, of which she requires very little and which seems to agree with her admirably well. At two P. M. complains, for the first time, of pain in her back and lower part of her bowels, which recurred in half an hour. Four P. M., cervix lower, soft, and dilatable. Head presents. Such was the history of the case given to me on my arrival by the doctor, who had been almost constantly by the bedside for about thirty-eight hours.

I found the patient in a perfect twitter of excitement, talking, screaming, twitching convulsively, very restless, asking hurried questions, very fearful of being hurt or touched, and apprehensive of evil. Conscious of all that was going on, but intelligence still clouded. Skin of good temperature; strength good; pulse 160, full and strong; lips of good color, but the pupil of the eye much contracted, although there was not much light in the room, and her face turned away from what there was; the eyes were glassy. There was some œdema of the legs. Vagina of good temperature and free from offensive discharges. Cervix uteri dilated to about the size of a dollar, well enough down, and entirely undilatable to the fingers. Membranes ruptured, but exactly where could not be determined. Head recognized to present, and some of the puckered scalp had passed through the cervix. Cranial bones did not move on each other when touched. No foetal heart or foetal movement to be recognized or provoked. (Labor-pains at two P. M. 29th, commencing in back; recurred every half hour until about 9 P. M.)

It was evident that prompt delivery was most essential, and yet thorough manual dilatation and the douche of the previous day had not advanced matters as satisfactorily as could be wished. I recommended the use of Barnes's dilators, which I had brought with me, and the prompt delivery of the foetus as soon as dilatation could be effected, and I left. It was then nine p. m. Dr. Hutchison then introduced the medium-sized dilator which I left with him, and having distended it as far as the cervix would allow, left it *in situ*. It remained an hour, when it was found in the vagina, and the cervix appreciably dilated. He reintroduced it twice, and the third time he dilated it to its fullest extent, and withdrew it at one a. m. of the 30th with some little difficulty, as the cervix, although sufficiently dilated to admit the hand, still yielded sluggishly and preserved its undilatable character. The doctor now introduced his hand and carried it carefully up to the neighborhood of the child's feet with the intention of turning, but at the same time the patient seemed to grow rapidly weak, abdomen became suddenly tympanitic at half-past twelve a. m., attended with vomiting of a dark-green fluid. No sharp pain, and the uterine contractions, which had been of scarcely any force, ceased for a time, although they subsequently returned. Giving up the idea of version, the doctor now examined the head carefully, and found that the bones could be moved on each other; and grasping the puckered scalp and the angle of a parietal bone, he withdrew a male child, aided by feeble uterine contractions. Placenta came away in a few minutes; no post-partum hæmorrhage; uterus contracted well. The mother continued to sink, and died at three a. m. of the 31st. I was sent for when she was sinking, and arrived after her death. The child weighed about five pounds. Its cuticle was discolored, and peeled off readily. No autopsy.

Physiognomy in Albuminuria.—Bridget Conway's face (Case 1) was very pale and bloodless, and no sign of œdema showed itself there until after the labor had occurred, when

it was probably due to the recumbent position. The limbs, however, were greatly swollen.

We have no right to rely on the physiognomy of the patient in this disease. We may, indeed, strongly suspect that a pale, puffy-faced pregnant woman, with swollen fingers, and moderate general anasarca, is the subject of albuminuria; but we may be mistaken, and the phenomena may occur in the patient who presents no outward appearances of the affection. It follows, therefore, that we must rely on examination of the urine alone. I have been struck, however, on more than one occasion by the marked clinical differences in the photographs of patients taken before and after the development of Bright's disease.

CASE 9.—*Albuminuria and Bright's Disease.*

A patient of mine, whom I had taken care of in both confinements, which were natural, was slenderly built, with delicate features, and a gentle, engaging expression. Some months after the birth of her second child, I was consulted for some symptoms which occasioned anxiety in the family; and I found, after a while, that she was addicted secretly to drinking. This she told me was rendered necessary to her by a peculiar feeling of distress which she could not explain. It is my belief that the habit was ultimately discontinued, but a very marked change took place in her physiognomy, rendered most striking by the expression of photographs taken at different times. She became drowsy, and her urine exhibited a large amount of albumen, and vast numbers of casts. A specimen of her urine, while yet warm, was examined by Dr. J. W. S. Gouley, who found casts of different sizes and all varieties throughout the fluid, without having to wait for any deposit. Under these circumstances I gave a very grave prognosis. This led to their taking other advice until they found a practitioner who did not share my apprehensions, and promised a cure. Their hope was still

further awakened by a temporary rally in her forces, but she soon succumbed to her disease.

CASE 10.—*Albuminuria ; eclampsia ; forceps.*

Dr. Winter sent for me on the 14th of September, 1861, to a primipara, aged twenty, in puerperal convulsions, which had then recurred during five hours. She was unconscious on my arrival, and had been so for two hours. Head presenting in the first position, descent completed. Dr. W. kept up the moderate use of chloroform, and I delivered a living child with forceps. This young mother, like so many others, presented, on careful examination, neither puffiness, pallor, nor œdema, nor any expression of the albumen with which her urine was loaded. Mother and child did well.

CHAPTER II.

PROPHYLAXIS OF PUERPERAL ECLAMPSIA.—VARIETIES OF PUERPERAL CONVULSIONS.

Prophylaxis of puerperal eclampsia.—*Case*: Puerperal eclampsia; profuse salivation from a mercurial purge.—Purgatives; diaphoretics; acids; diet.—*Case*: Albuminuria; puerperal eclampsia.—Induction of labor as a prophylaxis.—*Case*: Puerperal eclampsia; induction of labor; Barnes's dilators; forceps.—*Case*: Albuminuria in pregnancy.—*Case*: Puerperal eclampsia; induction of labor.—*Case*: Albuminuria and eclampsia in the first confinement; albuminuria and induction of labor in the second by the douche.—*Case*: Puerperal eclampsia; induction of labor; Barnes's dilators; douche; forceps.—Varieties of puerperal convulsions.—*Case*: Puerperal convulsions; no renal disease; consciousness not abolished; douche.—*Case*: Hysterical convulsions and hemiplegia.—*Case*: Poisonous effects of an infusion of stramonium-leaves injected in the rectum.

Prophylaxis of Puerperal Eclampsia.—Eliminate through the bowels, the skin, and perhaps the kidneys. Consider the advisability of inducing labor; and of abstracting blood. Diminish the supply of meat and undigestible food. Remove exciting and depressing influences. Do not debilitate the patient. Ward off threatening attacks with chloroform or sedatives.

Women are generally constipated, but the habits of the patient and the present condition of the bowels should be inquired into before the purgative is selected. Mercurials may produce unfortunate results occasionally, as in the following case taken from my note-book, and observed in the Dublin Lying-in Hospital during my residence there as pupil in 1849.

CASE 11.—*Puerperal eclampsia ; profuse salivation from a mercurial purge.*

— —, æt. 33, robust, short-necked, and very plethoric, was taken in labor with her *seventh* child, under the care of a midwife. Her former labors had been natural. This time the breech presented, and she was attacked with convulsions, for which she was sent into the hospital, where she arrived in a comatose state. Her feet and legs were much swollen, and her urine albuminous. She was largely bled, and had a turpentine injection. The labor terminated promptly, and to the best of my recollection without assistance. The child was dead. She lived for some days, many times convulsed and stupified, and almost motionless in the intervals; yet, when loudly questioned and shaken, she would answer, always replying that she was better. So sensitive was she to the action of mercury, that ten grains of calomel salivated her profusely, loosening her teeth, and causing several to fall out, and she more than once pointed to her mouth in a vague and complaining way. The day before her death she recognized her husband. The autopsy showed no lesion of the brain, but the kidneys were pronounced to be well-marked examples of Bright's disease in an advanced stage.

This, however, is the only case of salivation which I have met with in these conditions, and it may have been, and indeed it probably was, solely a coincidence. On the other hand, the mild chloride is a medicine very easily given, and renders the subsequent action of other medicine more prompt and certain. Mixed with butter, and placed on the back of the tongue, it and other powders are readily swallowed by the comatose patient.

Purgatives, Diaphoretics, Diuretics, Diet.—The prophylactic virtues of mercurials, in minute alterative doses, are very efficient in certain cases. The corrosive chloride deserves to lead the list, and may be combined with advantage with bark, and even with iron in some cases where the hydræ-

mia is very marked, the head symptoms absent, and the experiment well borne.

The best cathartics for the prophylactic treatment, in my opinion, are preëminently the salines, steadily and intelligently used. The Saratoga waters; magnesia, and Rochelle salts, preceded by colchicum, where there is great acidity and a rheumatic or gouty diathesis. Epsom salts and jalap, or the compound powder of jalap, in most cases, are efficient and reliable. The acidulated bitartrate of potassa is very grateful. If there be delay, enemata are valuable; and they should generally be used in the case of a patient seen for the first time, and threatened with eclampsia. Francke's dinner-pill (*grain de santé*), made from aloes and the extract of jalap, has long been my favorite medicine of its class. The combination is good, and the ingredients excellent. In some cases of hopeless Bright's disease I have known great temporary benefit to follow the administration of elaterium and the apocyanum cannabinum. In the cases we are considering, these powerful remedies and croton oil may possibly be required, but it is better to avoid them if possible.

The skin should always be stimulated to increased activity. More than one author has truly said that no man ought to expect health who has not been thrown into a good perspiration at least once a day. All Americans who inhabit a dry climate have need to bear this specially in mind. For many years in Bellevue, when diaphoresis is desired, patients have been packed in blankets, and hot air introduced within these by a portable apparatus. As a rule, very free perspiration can be promptly induced in this way. Bags of potatoes or corn steaming hot; heated bricks in wet cloths; lime placed in pans, or sections of tubes, and then slaked (care being taken that the patient shall not be burned), are efficient remedies, always available. Ronchetti's portable hot-air bath is excellent, and the best of its class. I find it very useful in these cases, and in the treatment of rheumatism and other diseases in which diaphoresis is indi-

cated. I send my patients (not pregnant) with chronic albuminuria, as well as those with gout and rheumatism, certain dyspeptics, those with psoriasis, and others, to the Turkish and Russian baths, with the conviction that I am meeting a desirable indication. It would probably benefit many pregnant women also. Some of these days, the prophylactic use of these baths will be proven, their uses more widely appreciated, and they will become a national need.

I have never hesitated to try diuretics in cases of albuminuria in connection with the methods indicated above, selecting such as are the least stimulating, and act more by their bulk and weight—if the expression may be permitted. A free use of water, sweetened, or acidulated with lemon-juice, or fruit-syrups; carbonic-acid water; Vichy and Seltzer waters; and such tisanes as tempt the palate, while they meet the indications, command my preference. I have used the bromide of potassium for this purpose, and for quieting the excitability and sleeplessness of some patients. Where there is tenderness over the kidneys, or blood-corpuscles in the urine, or where the symptoms are acute, dry or wet cupping, or counter-irritation over the lumbar regions, must be considered, is generally beneficial, and may increase the secretion.

I do not feel prepared to give an opinion regarding the efficacy of benzoic acid, lemon-juice and tartaric acid, in these cases of blood-poisoning. It is better that they should be given, however, especially the latter, as they will not do harm, and are claimed on high authority to be efficient. I have long been in the habit of using the mineral acids in cases of albuminuria in bilious subjects, and especially where the oxalate of lime is present. In some cases of headache the phosphoric acid is very beneficial, especially in delicate, pale, impressionable patients.

I prefer to deprive these puerperal patients of the use of meat, or rather to regulate its use, unless it should be obviously necessary in a special case.

Under this line of treatment, varied according to the patient's strength and tone, many cases of albuminuria in the puerperal state have been relieved, and the dark cloud lifted from the coming labor. But the improvement must be permanent, not temporary. The predisposition is there, and must be kept in abeyance.

This very fact teaches us additional caution. Time is an element in the prognosis.

CASE 12.—*Albuminuria; convulsions; death in next pregnancy.*

Mrs. —, a patient of the late Dr. Bolton, forty-odd years of age, seven months gone in her fourteenth pregnancy, has had no trouble in any former confinement. She now suffers (*January*, 1858) with amaurotic symptoms and headache. Quite puffy. *January* 11, 1858.—A convulsion. Bled by Dr. Bolton, with great benefit, who consulted me regarding the case. Urine coagulated by heat and nitric acid, and presents microscopically evidences of advanced Bright's disease. *25th*.—Called to her suddenly in the absence of Dr. B., and drew off half a chamberful of urine. Same appearances. In consultation, premature labor decided upon. *February* 3, 1858.—The day fixed for the operation. Patient naturally delivered during the night of a still-born child without any difficulty. Chloroform given by Dr. Bolton, who was in attendance. *March* 12, 1858.—General condition very satisfactory. Puffiness gone. Dr. B. has fully explained to the husband the nature of his wife's disease, and given it as our opinion that another pregnancy would be dangerous in the extreme. *August* 16, 1858.—Complains that she sees every thing divided in four parts. Enchanted, however, with her condition, because a late well-known physician of this city had seen her while out of town, and, after hearing the history of her case, examined some urine for albumen, and, not finding any, told her that she would un-

doubtedly do well. This gentleman subsequently told me himself that he had made no other examination.

June, 1859.—Dr. Bolton left town and consigned this lady to my care. To my great regret, I found her far advanced in pregnancy; not at all apprehensive in consequence of the opinion just alluded to, and which I then learned for the first time. The urine was albuminous, and microscopical examinations by Drs. Gouley and Alonzo Clark confirmed the diagnosis of advanced Bright's disease. *June 31st.*—She was attacked with hemiplegia of the right side, with loss of consciousness. The attack was a mild one, and she greatly improved. Spirits unimpaired. I now desired to induce premature labor, but did not consider it advisable to bring it on until her nervous system had recovered more thoroughly from the shock, and the risks of recurring cerebral hæmorrhage from the same site had diminished. *July 9th.*—Patient's condition greatly better. Sat up in bed, and took her supper cheerfully. Toward morning I was called, and found her with a second attack of hemiplegia. Capable of being moved, but otherwise sleeping soundly and breathing stertorously. No convulsion. Dr. Cheesman called in consultation. On the 10th, seeing that the case was hopeless and the foetal heart still beating, I introduced a sponge-tent through the cervix uteri, which was rigid, although somewhat dilated—as was to have been expected in the fifteenth pregnancy—and visited her frequently to take the first opportunity of delivering whenever the os might be sufficiently dilatable. *11th.*—During my absence she suddenly died. I arrived in a few moments, and delivered rapidly by version. Cranial presentation. Child still-born. Only two hours before, the operation was rendered impossible by the non-dilatability of the cervix. No post-mortem permitted. No physical signs during life of disease of the heart, lungs, or liver.

The Induction of Labor as a Prophylaxis.—From the preceding remarks it is evident that there is no absolute physical sign, on which we can alone rely, to decide the question

whether premature labor should be brought on or not. The decision rests on the summing up of the whole case; and the operation is therefore to be postponed if possible, unless the term of pregnancy be already reached, when we are entitled to a larger liberty, with the present excellent methods at our command.

As in all elective operations, we are liable now to regret that it has been postponed too long, and then to question whether it might not better have been deferred. Unless the decision be arrived at on account of existing eclampsia or other serious contingency, if the result be not satisfactory, hostile criticism will not be withheld. And if it be satisfactory, and both lives be saved, it may be suggested that the operation was unnecessary, meddlesome, and hazardous. Such is the world; and hence the question should be decided in deliberate consultation, and the burden divided among strong shoulders.

My experience leads me steadily to look more favorably on the induction of premature labor, in cases where repeated examinations of the urine show that the conditions of disease are persistent, or progressing despite treatment; where some of the prodromata of eclampsia—the first mutterings of the coming storm—are present; and where the fœtus is fully viable. In cases where the fœtus is not viable, we must wait until the mother's life is actually endangered by successive attacks of eclampsia, or for other conditions recognizable in consultation, which lead irresistibly to the clinical conviction that either the pregnancy or the woman's life must be terminated.

In the following case the question of premature labor received my most serious consideration, and it was postponed because the patient seemed to improve; a fact which I have since regretted.

CASE 13.—*Puerperal eclampsia; induction of labor; forceps; Barnes's dilators.*

Mrs. — had been under my care in her first pregnancy,

when the labor was tedious, but terminated naturally. During that pregnancy her condition gave me some slight apprehension, and led to frequent examinations of the urine, which, however, was always up to the standard of health.

When she came under my observation in the second pregnancy, her urine was found to be albuminous; sufficient in quantity, with casts not numerous, but varying considerably in diameter, and either granular, or containing shrivelled degenerate gland-cells. The specific gravity averaged about 1014 to 1015. There was occasional dimness of vision, seeing objects as through a fog or mist, some disturbances occasionally of hearing, as though loud, sudden noises were heard. The urine was examined by Drs. A. Flint, Jr., and W. H. Draper. The treatment was addressed to the bowels and skin. The legs were markedly swollen. The induction of labor was considered from day to day, and postponed from the thought that the patient seemed to improve.

June 1, 1866, she was on her way to bed at a quarter of ten in the evening, when she was taken with her first convulsion. A second one, severe and well marked, occurred at eleven o'clock, and was witnessed by Dr. Crane and myself, and we sent for Dr. W. H. Draper. There was no return of consciousness, and we bled her to $\bar{5}$ vi. The patient was very strong and plethoric. Consciousness did not return, and we decided to bring on the labor. The smallest-sized Barnes's dilator could only be introduced. This was dilated to its fullest capacity with difficulty at 12 p. m. June 2d, 2 a. m. It slipped out. Violent convulsion. Labor-pains. Os fully enough dilated to admit the forceps for delivery from the brim. Foetal heart beating. Right occipito-iliac position. I applied the forceps within the cervix, and delivered a living child, which did well. 3 a. m. Placenta came away well. Good uterine contraction. Chloroform had been kept up since 11 p. m. 3½ a. m., 4th. Severe convulsion. Coma and duskiness of surface very marked. V. S. ad $\bar{3}$ vi. Hyd. chlor. mitis. gr. v. Pulv. jalapæ gr. xv. 7 a. m. Con-

vulsion. She lived until the afternoon of the 3d June without regaining consciousness. The bowels were freely acted on by the medicine. Her strength was sustained by milk and beef tea given with pepsine. We thought that the tendency to convulsions was checked by the internal exhibition of chloroform in milk. Some hours before her death she evidently swallowed with more difficulty.

Some urine drawn after the convulsions had commenced was examined by Dr. Flint, Jr. It presented similar appearances to the others, and also some waxy casts.

Permission was obtained to examine the kidneys alone. In doing so, the liver was observed to present marked evidences of fatty degeneration, and to be very friable. The kidneys were examined microscopically by Drs. Flint, Jr., and F. Delafield, and the result expressed in the following words of Dr. Flint, Jr.:

"Cortical substance pale, yellowish, and friable. Pyramidal substance unusually red.

"*Cortical*.—On microscopic examination with the binocular and one-fourth inch objective, the following appearances were observed:

"The Malpighian bodies were nearly natural, the convoluted vessels in their interior less prominent than usual, and in many of them there were numerous large granules and small globules of fat. The convoluted tubes presented granular contents, in which it was impossible to make out any distinct division into cells. Some of these contained a few granules of fat rather smaller and less numerous than those in some of the Malpighian bodies. Nearly all of the cells observed floating in the field were filled with small dark granules. There were no free oil-drops or granules observed. Most of the tubes presented the characteristics above described, but more than half of the Malpighian bodies were free from granules of considerable size.

"*Pyramidal*.—In this substance the tubes were often found entirely empty. Those which were isolated and full,

contained dark granular matter. Several waxy casts were observed. The free cells floating in the field were generally filled with dark granular matter.

"There appeared to be a want of cohesion in the cortical substance, the tubes having a tendency to break up, and being isolated with difficulty. In the pyramidal substance the contents of the tubes were easily forced out, but did not form regular casts in the field, as is usual in a healthy specimen."

In the following case the question of premature labor was a debatable one. The report is taken from the minutes of the New York Pathological Society for the stated meeting of November 11, 1864.

CASE 14.—*Albuminuria ; hydro-nephrosis of one kidney ; distended ureter ; arachnitis.*

Dr. Elliot presented a pair of kidneys taken from a multipara, who entered Bellevue Hospital on the Thursday before. At the time of her admission she was in the eighth month of pregnancy with her sixth child. She never had trouble with previous confinements. She was exceedingly drowsy, and answered questions very unsatisfactorily. As the result of persistent questioning, it was ascertained that she had suffered from dizziness during a previous pregnancy, and that a few years ago she had been subject to a puffiness about the face and hands in the morning. The pulse was 100, and quite feeble. The left pupil was somewhat dilated, and contracted sluggishly under the influence of light, as compared with the other. On the Sunday before, while rising from the breakfast-table, she became suddenly paralyzed on her left side ; sensibility of the side was very defective ; tickling of the foot, however, produced the customary jactitation. The urine presented a moderate amount of albumen, and had a specific gravity of 1020, and was normal in color. Examined microscopically by Dr. Francis Dela-

field, it showed no evidences of casts, but there was a considerable amount of blood present. The urine dribbled from her, the bladder not being distended, and the secretion was caught by a cup placed between the thighs. The os was dilated to the size of half a dollar, but not dilatable. The foetal head could be detected within the os, presenting in the first position, the summum of intensity of the foetal heart was upon the left side.

On the suspicion that the case might be one of uræmia, and threatening convulsions, the necessity for inducing premature labor was seriously considered. A saline cathartic was administered on Thursday with the effect of brightening her intellect on the day following. There was, however, still a good deal of jactitation present, though this condition was not persistent. On Saturday she was so much improved that it was decided to defer the induction of the premature labor, in hope that the case was not so serious as was first supposed. It was then thought that the bloody urine might be due to simple congestion of the kidney, and in that view Dr. Mola, the house physician in charge, was directed to apply wet cups to the lumbar region, and in case she bore the remedy well, to apply them also to the back of the neck. Dr. Mola came to the conclusion very properly, after the first application of cups, not to repeat them. The patient passed the night as usual, and in the morning, by the help of the attendant, was able to sit up in bed. Shortly after she lay down, and without any warning the liquor amnii escaped, followed by the child; and when the nurse, who was only a few feet distant from her, came to the bed, she found the child, placenta and all, between the thighs of the patient. Some clots followed; firm pressure was made upon the uterus; and Dr. Mola being sent for, arrived immediately. Dr. Mola found the uterus well contracted, and immediately resorted to the best possible means to guard against hemorrhage. When Dr. Elliot saw the case in the course of the day, she was breathing automatically, and died soon after.

Autopsy.—The head being examined, there was an undue amount of sub-arachnoid fluid. The arachnoid membrane was opalescent. The two lateral ventricles also contained an abnormal amount of fluid. The choroid plexus was pale. About the fissure of Sylvius there was evident softening of the brain substance. There were slight adhesions in the chest, and there was also fluid in the pericardium. The right kidney, weighing about four ounces, contained a cavity occupied by a whey-like fluid, while the walls of this cavity were extremely thin, reducing the organ almost to the condition of a multilocular cyst. The ureter leading from the kidney was also filled with the same material, and was increased in calibre. This tube being cut off a short distance below, was not followed further. In one of the pouches of the kidney was found a small renal calculus. The other kidney weighed seven ounces and was perfectly healthy, being abundantly able, to all appearance, to perform the excretory function allotted to it.

CASE 15.—*Puerperal eclampsia ; safety of mother and child ; induction of labor ; history of subsequent labor.*

Dr. Warner sent for me in February, 1860, to a case of puerperal convulsions, associated with albuminuria, in a primipara, occurring toward the end of pregnancy. Before my arrival she had been leeches and purged. Labor had not commenced. We agreed that sponge-tents should be used, and the patient delivered with forceps as soon as possible. By these means Dr. Warner brought on the labor, and delivered the woman of a living child, which is now living.

Within a year this woman became enceinte again. She had not been able to nurse the first child, and during the earlier months of pregnancy the urine became again albuminous. By enjoining abstinence from meat diet, and the use of Rochelle salts, Dr. Warner carried her safely through the confinement, the albumen having disappeared before the

close of pregnancy. Many months after, chemical and microscopical examinations of her urine gave no evidence of disease. She is now (1867) well.

CASE 16.—*Albuminuria in a multipara; premature birth of a still-born putrid child.*

Dr. C. L. Mitchell requested his patient, Mrs. —, to call at my office on the 3d of March, 1863, for my opinion. *History.*—Aged 44; first menstruation at 15; married at 23; first child in March, 1847; second child in 1850. During this pregnancy she suffered much from pain in the head and bloating. She was bled, and within twelve hours labor set in, and a premature seven months' child was born. At the close of her third pregnancy she made a misstep, and hemorrhage set in. The hemorrhage subsided and returned in a month, when she was delivered with forceps of a dead child. A miscarriage was followed by two normal confinements, and then a miscarriage (attended with much hemorrhage, after which she remained "pale and bloated" for some time) preceded her present pregnancy. She was last unwell in August, 1862. Motion felt in January, 1863. During November, 1862, had inflammation of the right lung, and was threatened with miscarriage, but saved. Six weeks ago she began to notice swelling in her ankles. This has increased and become general. Face and hands moderately puffy; the finger sinks deeply over the tibia. Within ten days there has been disturbance of the sight. Sees objects sometimes as through a fog; flashes of light and sparks before the eyes; sensation as of sand in the eyes; lachrymation. No disturbance of auditory nerve. Has "dizzy turns" sometimes in the day. Is liable to "a feeling of distress" coming from the umbilical region, and spreading over the whole body. Patient not in the least hysterical. Some difficulty in passing water, as in previous pregnancies; passed a great deal of water during the night before the bloating came on, and since then the

quantity has diminished. Still has to rise four or five times in the night, but not so frequently as formerly. No nausea; appetite good; bowels natural. Purplish (vascular) spots have recently appeared on the face and neck.

Dr. A. Flint, Jr., made two examinations of her urine, and found the reaction faintly acid. Sp. grav. 1015; albumen very abundant. There were scales of pavement epithelium; leucocytes in abundance; granular and waxy casts.

I recommended abstinence from meat and stimulants, but nourishing diet; leeches behind ears or nape of neck for threatening cerebral congestion; bloodletting if such symptoms showed themselves. Premature labor at time of foetal viability, and before if complications occurred. Salines; skin to be kept active; chloroform for labor.

On the 15th of April, 1863, I received the following letter from Dr. Mitchell:

"I think that Mrs. ——'s child is dead, and has probably been so for a month past. Swelling of limbs has subsided; enlargement has lessened; and no sign of life has been manifested. Under the use of the bichloride the crushing pain in the head has ceased, the albumen in the urine greatly diminished, sleep and appetite much improved. . . . Trust that all things may terminate more favorably than at one time we had promise of."

On the 18th of April, 1863, Dr. Mitchell sent me the following note:

"Mrs. ——, after a half hour's labor of not over five pains, was delivered just now of a foetus that had evidently been for a long time dead—at least one month."

July 8, 1864, the following memorandum was received from Dr. Mitchell:

"In subsequent examinations of Mrs. ——'s urine, scarcely a trace of albumen was found. She is now living in the country, and, I believe, enjoying excellent health."

Oct., 1867. "Remains well."

CASE 17.—*Albuminuria and eclampsia in the first confinement; persistence of renal symptoms; induction of premature labor in second confinement, three years later, by the douche.*

Mrs. — was attacked with puerperal convulsions in August, 1859, when she had reached about the eighth month of her first pregnancy. She was bled, and was safely delivered a few days afterward without assistance. Chloroform was given. Previous to her departure from the city, I had made a number of examinations of her urine, both chemically and microscopically, and these had also been made by Dr. Gouley, without the discovery of any thing abnormal. Still I requested, if the family should notice any puffiness of the face, that some urine should be sent me by express, for examination. This was not done, although puffiness of the face was distinctly observed before the convulsions came on; and for many months after her confinement the urine was more or less albuminous, and presented granular casts, with renal epithelium attached, some of which presented a few oil globules. I have made, with the assistance of Drs. Gouley, Alonzo Clark, Wm. Henry Draper, and Austin Flint, Jr., a great number of examinations of this patient's urine at different times, and the result has never been such as to make me feel comfortable regarding the risks of a second pregnancy. During the interval which elapsed from the first confinement to the second pregnancy, Mrs. — was the subject of "ulceration" of the os and cervix uteri, with leucorrhœa, from which she was entirely relieved by the nitrate of silver, vaginal injections, and invigorating treatment. Iron disagreed with her, and though carefully tried in many forms and in small doses, could never be steadily relied on as an element in the treatment. The skin was always kept warm, warm baths used, and during the first winter after her confinement, dry cups were occasionally applied over the kidneys, when any pain was complained of

in that region. In the autumn of 1861 her general appearance was better than it ever had been—color, appetite, strength excellent; and she became pregnant in the winter.

Examination of urine by Dr. W. H. Draper, February 7, 1862. Patient had then been suffering from a severe headache. (I may mention that the usual phenomena of nausea occurred.)

Morning urine—specific gravity, 1013, and a trace of albumen. By microscope, nothing but pus-cells.

In this instance it was thought that there was enough pus to account possibly for the albumen. In the other examinations recorded this was not the case. Very many examinations of urine which disclosed no evidences of disease, chemical or microscopical, would be of low specific gravity.

In the beginning of June, Mrs. — left town for the summer, feeling and looking well; nor did she suffer from any thing unusual until the middle of July, when disagreeable but not serious head-symptoms troubled her, and she sent me some urine, which, by mistake, was not examined, and the symptoms soon disappeared. On visiting her in the country I found her looking well—no cedema, puffiness, or outward sign of trouble—and obtained some urine, which was examined by Prof. A. Flint, Jr., and found to be albuminous, and to contain two transparent casts, with some few epithelial cells. Two or three oil globules were attached to the casts, and one gave a measurement of one-fifteen-hundredth of an inch. There were also some crystals of the oxalate of lime.

Mrs. — now came to town, as she had some threatenings of labor, which soon disappeared, and two specimens of urine, one evening and one morning, were obtained. Both of these were quite albuminous, markedly so when nitric acid was added to the urine after ebullition had taken place. One was examined by Dr. W. H. Draper, who found a specific gravity of 1010, shrivelled, degenerate, renal epithelium, numerous pale, transparent casts, and a few slightly granular, with granular epithelium attached.

Under these circumstances, I decided to induce premature labor. It seemed to me that such was my duty, for these reasons :

1. The child was fully viable and living.

2. It was established incontrovertibly that the kidneys had never entirely rallied from the albuminuria in the first confinement; that they now presented evidences of grave disease; and that there was sound reason for believing that these symptoms, which had baffled so much care already, would increase in direct ratio to the duration of gestation.

3. That in addition to the immediate risks to mother and child from the effects of the albuminuria, there were the greatly increased risks to her future health from the further persistence of the causes which had already proved so hurtful in her first labor, and which were likely to prove so much more serious now when the kidneys were weakened by previous disease.

4. That the induction of labor by the douche was not dangerous, when properly performed, and offered the advantages of greatly diminishing the chances of undilatable os, which I believe to be especially liable to occur to women who have albuminuria, and who have suffered from long-standing ulceration and inflammation of the cervix.

My opinion was then given to the husband, and my willingness to consult with any physician on the subject fully set forth. He decided that he did not wish a consultation, and that I must act as I deemed best. After waiting several days, during which time Mrs. ——'s primæ viæ were carefully attended to, the urine remaining unchanged, and all parties consenting, I gave the first douche on the 30th July, 1862, at about 5 p.m. At this time the os was high up and far back, not dilatable, barely admitting one finger. The vagina was not at all relaxed, and rather dry. The foetal heart was audible everywhere, though less so on the left side, where it was masked partially by the uterine soufflé. Thus I could not satisfactorily determine the site of the sum-

num of intensity. The head was distinctly recognizable through the anterior wall of the cervix, a suture being also distinguishable. I injected about five-sixths of a large pitcherful of warm water, with Davidson's syringe, against and within the os, which was dilated enough before the conclusion to allow me to corroborate my diagnosis of the presentation; and the opportunity was embraced of drawing down the os so as to bring it more readily within reach of the douche, and to increase the prospects of its dilatation by the descent of the membranes. Labor-pains set in promptly, and continued through the night, so as to prevent her from sleeping. At 5 A.M., July 31st, I made an examination, and found that the right thigh was now across the os uteri, this latter being larger than a dollar, and dilatable; membranes unruptured. The knee was to the left side of the os, the ilium within reach of the finger introduced within the cervix on the right side. The head could be felt in the epigastric region. Foetal heart beating. This disagreeable complication had been alluded to by me in a conversation with Dr. Thomas before the labor, as a contingency more likely to happen in a premature labor, though certainly it surprised me none the less when it occurred.

When living in the Dublin Lying-in Hospital, in 1849, in a case of deformed pelvis, the head was perforated; after a consultation by Dr. Shekleton with Johnson, the former Master, Evory Kennedy, George Johnston, Collins, McClinck, Harrison the anatomist, and Sir Philip Crampton, it was decided to let the head remain a couple of hours to mould itself to the brim. At the expiration of this time the head had gone up on the right side of the uterus, and the arm was found in the vagina.

Such a "*culbute*" or "rope-dancer's trick," as Hunter called it, as happened here, has not occurred in my experience, though much more striking ones are recorded by the best authorities; perhaps no one more so than that recorded by Depaul in his "*Traité d'Auscultation Obstétricale*,"

Paris, 1847, page 318, where Depaul, Madame Callé, *sage-femme en chef*, Dubois, and Cazeaux recognized by the touch that, in a woman eight months and a half gone, the head was recognized to present in the morning and the feet in the afternoon; and some time later in gestation the head again presented, and the delivery was then effected. In that case, these variations in the presentation were not caused by uterine contraction. In my case the alteration was not effected by the douche, for I felt the head after that was completed, and I do not know the stimulus for the reflex action. My patient was now quite restless and excitable for one possessing such a remarkable degree of self-control; and I concluded to put her under chloroform, give another douche, and see what had best be done. Accordingly I sent for Dr. Thomas, who arrived about 7 A. M., when, after she had been brought under the influence of chloroform, he came into the room and kept up the anæsthesia. Having placed her in the obstetric position, and confirmed my diagnosis of the new presentation, I proceeded to endeavor to *turn by external manipulation*, and succeeded in changing the position so far that the finger, well introduced on the right side, within the cervix, touched the knee in the place where the ilium had been. But this was the extent to which the version could be effected, and I accordingly replaced the thigh by pressure through the right side of the uterus, and fully dilated the os by a small douche and the use of my fingers. She was then replaced in bed, and the chloroform kept up. In about an hour the membranes broke and the right knee came near the vulva, when we again replaced her in the position for forceps; and these being ready, but not needed, I succeeded in delivering a living, well-formed male child, weighing about seven pounds, without the loss of a moment. The cord was three times around the neck, and was rapidly disengaged. The child seemed at first indisposed to breathe, but the cord pulsed well, and after much less than the customary effort in such

cases, we considered that he would do well. He was dressed, brought to receive the mother's kiss, and when I went to breakfast at eleven (leaving the sluggish uterus to Dr. Thomas's care, as it still required holding), I had the happiness of feeling that the case had proved a perfect success. The nurse then sent for me to say that the child was blue, and on examination we feared the worst. The right leg, thigh, and arm were bluer than the others, but the marks of universal dermoid congestion were everywhere apparent. The respiration was feeble in inspiration and prolonged in expiration; the epigastric pulsation unduly marked, and attributed with correctness by Dr. Thomas to the engorged right side of the heart. Some comparative dulness was apparent in the left chest anteriorly. Stimulus by enema, as the child would never swallow; friction, warm and cold baths, sprinkling, and the persistent use of Marshall Hall's method for some hours, would rally but not permanently benefit the child. We sent for Dr. Jacobi. He examined the child with his accustomed thoroughness, and stimulated the cutaneous nerves with great vigor, and with the effect of very markedly arousing the child for a time; but, as before, the lethargy and the prolonged expiration returned, and the child died between five and six in the afternoon, with a steady advance of all symptoms, except the coloration of the face, which became quite pale. The eyes opened an hour or two before death for the first time. No squinting, no paralysis.

Autopsy.—Twenty-two hours after death; weather quite warm. Blue coloration marked, except in the hands, which were white, the blood having left them by gravitation, as they were folded on the abdomen. Lungs congested, highly colored, collapsed. Left lung felt as though it had never been inflated in the upper lobe. They were readily blown up with the pipe. Pleuræ, heart, and vessels, and pericardium normal; liver congested but normal, as were the other viscera. Brain and medulla examined with great care, and

without result. Blood examined for urea, without result.

Mrs. — remained weak, with a sluggish uterus, somewhat restless, clear-headed. Beef tea, brandy, and ergot through the day; codéine at night. Catheter that night. *August 1st.*—Beef tea and oatmeal gruel. No stimulus. Codéine. Good night. *August 2d.*—Very comfortable day; codéine. Good night. *August 3d.*—Enema. Some clots. Breasts distended with milk. Since that time her convalescence was uninterrupted. She has subsequently suffered from a return of the old erosion of the cervix with uterine catarrh, for which she was treated for two or three months with perfect success. Since then she has done uninterruptedly well; her urine has returned to the normal standard. No pregnancy has occurred. She is now (July, 1867) in excellent health.

CASE 18. — *Puerperal eclampsia; induction of labor; Barnes's dilators; douche; forceps; chloroform.*

At 11 A. M., December 13, 1866, Drs. Leverich and Vanderveer sent for me in consultation in the case of Mrs. —, a primipara, aged twenty-two, suffering from puerperal uræmic eclampsia. She was well-formed, and healthy-looking, without œdema, and no paler than might have been expected in a case where blood had just been taken by leeches.

She had been married eleven months, and had menstruated for the last time eight months ago. On the 28th of November last she had been attacked with convulsions under the care of the same gentlemen, and had been treated by wet cups to the temples; purgatives; and counter-irritation to the spine. In all she had seven perfectly well-marked convulsions, consciousness returning between the first and second, and then remaining in abeyance until the attacks ceased. The urine was found to be very markedly albuminous. Under the treatment employed the convulsions ceased, the pa-

tient was restored to consciousness, and the pregnancy was allowed to progress.

On December 13th, at 7 A. M., she was again attacked, after having vomited and purged moderately through the night. Four convulsions had occurred before my arrival, with a return to consciousness between the first and second. Six leeches had been applied to the temples, which were yet bleeding; counter-irritation had been used to the spine, and assafœtida had been given by the rectum. Just after my arrival another perfectly characteristic convulsion recurred. The uterus was not large, patient evidently not at term—apparently about seven months. Cervix uteri very high up, and admitting one finger; head presenting, membranes unruptured, vagina not relaxed. No labor-pains. No foetal heart or uterine souffle. No foetal movements. Pulse before the convulsion, and during the rest of the day, very rapid and very feeble. Surface cool.

It was agreed that the condition was one of extremest danger, that the child was dead, and that the mother's best chances were founded on her delivery. With the approval of all, I determined to try Barnes's dilators. The patient's condition was such that we were unwilling to give chloroform; and I found the task very arduous on account of the physical difficulties described in the vaginal examination, and on account of that extreme jactitation which we often see in these cases of puerperal albuminuria, and which is such an unfavorable symptom. My third effort was successful, and the second size was squeezed into the rigid cervix, an operation only rendered possible by the aid of a catheter, after all the air had previously been expressed from the dilator. Carefully proceeding to inject the water, the dilator was suddenly and completely sucked within the uterus to such a distance that I could not touch it through the cervix, and was apprehensive for a moment that, if the hollow supply tube should give way, the instrument might only be delivered after the child. However, after the water had

been allowed to escape, careful tractions drew it in the vagina. Managed to reintroduce it with great difficulty; when, on injecting the water, a leak occurred at the base, which rendered it useless. Not to dwell too long on the peculiar difficulties that attended the dilation of this remarkably rigid cervix, it may be said that if then and subsequently the dilator was well introduced into the cervix, it would be sucked into the uterus; and if it were not well introduced, it would be thrown into the vagina. Another peculiarity occurred in the case. When some dilatation had been gained, and the instrument thrown out, as described, the cervix contracted, and felt, as Dr. Leverich remarked, like a band of hard rubber.

Having sent for new dilators, I ruptured the membranes, drew off some urine, and waited. When they came, at half-past two, I renewed my trials, placing the woman both on her back and on her left side, with the results detailed. Labor-pains, however, commenced at five o'clock, and some advance had been made, as the cervix now admitted two fingers, with an edge that felt like whip-cord, and was utterly undilatable. Meanwhile, three more convulsions had happened. At half-past five I injected two large pitchersful of warm water against the inner rim of the cervix, having previously left the largest-sized dilator in the vagina for an hour or two, as a stimulant to uterine contraction. At half-past six and half-past seven these injections were repeated by Dr. Leverich; and at 8 P. M. the cervix would admit the points of three fingers, but was as rigid as ever. It was decided that the perforator should be used, and the patient was kept quiet by chloroform given by Dr. Vanderveer. Having opened the head, and evacuated the foetid contents, I drew with Churchill's crotchet cautiously. The cervix followed down the head and the shoulders to within an inch of the vulva, and demanded counter-pressure with the hand, which also guarded the crotchet. The child was a female, putrid and small. Placenta came away readily. Two more convulsions had

occurred since the last note. Ergot was given, and, as the patient was very feeble, an enema of beef tea and brandy was injected, and held up. During the day there had been long intervals in which she conversed with those in the room, but I doubt whether consciousness was complete.

Some urine carefully drawn with the catheter was examined by Prof. A. Flint, Jr., with the following result: "Reaction acid. Albumen very abundant, with urates, which cleared up on the first application of heat. On microscopical examination I found urates, fatty granules and globules, and casts. The casts were more numerous than I had ever seen them. They were granular, large and small, and waxy. The large, half-granular and half-waxy casts seemed to predominate. There was not enough for specific gravity."

In July Dr. Vanderveer informed me that this patient had continued to improve and do well since her confinement.

Varieties of Puerperal Convulsions.—We need a term to distinguish such convulsions in a puerperal state as are general in character, with total abolition of consciousness, from those which are more or less incomplete, and of less dangerous significance. Hence the term eclampsia is as good as any other for the former, and the latter can be assigned to their special causes, so far as these are understood.

The following case is unique in my experience:

CASE 19. — *Puerperal convulsions unconnected with evidences of renal disease; consciousness not abolished; chloroform; douche.*

Susan Mabbett, aged 33, entered the New York Lying-in Asylum, May 18, 1853, when I was Resident Physician, and four days before her ninth confinement. Her expression is haggard, teeth very bad, and general expression that of impaired health. For the last five years she has suffered from convulsions, which are increasing in severity and frequency. She has once miscarried, but has not been confined since her

liability to convulsions. Her feet are not swollen, and her urine contains no albumen, but great quantities of the urate of ammonia, with some urate of soda and bile. Her appetite is capricious and her digestion bad. She is liable at all times to convulsive jerks of the body, springing from the lumbar region as a centre, and which can be determined at any time by pressure on these vertebræ. On the 19th, at 3 P. M., she had a severe convulsion, followed within an hour and a half by seven more. A description of one may serve for all: The jerking movement alluded to commenced, resisting all her efforts to control it; her eyes then turned to one side, with a wild, severe expression; lips tightly closed. I desired her to look at me, and she replied with evident difficulty, "In a minute;" then her body stiffened itself, with her head and legs thrown back, arms stretched from her sides, with her hands tightly clinched and flexed, and the convulsive jerking movement increasing in rapidity; suddenly she bent her head forcibly on her breast, drawing several deep inspirations with a loud, harsh noise, and then resuming her original position, with her head moving convulsively from side to side. Sometimes she would flex her head on her breast more than once during the attack; but then only did she appear to inflate her lungs; her tongue protruded occasionally, but she did not bite it; and when the fit was over she would lie exhausted, but free from anxiety, though anticipating its return. At the time she appeared most convulsed I closed one eyelid, and on learning from her afterward what had been done, I was sure that she had not lost consciousness. The os then commenced to dilate, and the head presented in the first position; foetal heart audible; pains rather good; there was no positive indication except the use of an anæsthetic, and I thought it as well to watch the attacks in the hope of their cessation; but at last I exhibited chloroform. She came readily under its influence, and revived readily. I have since had occasion to believe that she had been in the habit of drinking. I kept her an hour under chloroform, when I allowed her to revive,

the pains still continuing. She then had a quiet sleep. During the evening she had a less severe attack, in the presence of Dr. Metcalfe, and passed a quiet night. On Friday the os was dilated to the size of a dollar, thick and unyielding. During the afternoon she became rather wild, insisting that her sister was in the closet, and at one time shrieking fearfully. I quieted her without chloroform—soothed her, and persuaded her to control herself. She again passed a pretty comfortable night; at times the pains would be well marked for two or three hours, and then cease. On Saturday, at 2 P. M., finding the os still unyielding, I determined to try the effect of Kiwisch's douche, and injected a half-pailful of warm water in a steady stream against and within the os. I used Higginson's syringe, injecting with one hand and guiding the tube with the other, and never derived a better result. The os softened—melted away. The pains increased steadily in frequency and force, and within three hours she gave birth to a living female child. Placenta came away readily. She needed no further treatment except profound quiet and well-regulated nourishment, and left the house on the 3d of June.

The following case illustrates the severe hysterical type of convulsions, though not occurring in the puerperal state:

CASE 20. — *Hysterical convulsions and hemiplegia. Bellevue.—Dr. J. R. Buist, House Physician.*

Hannah — came under my observation March 4, 1858, as she lay in bed in an exhausted condition, apparently unconscious, but capable of being roused and of answering questions. She was unmarried, well formed, healthy looking, and had no menstrual irregularity. For two weeks she had been troubled with severe pain in the head, circumscribed in a spot about two inches square over the right fronto-parietal suture, for which she had sought relief in constant cold lotions. At the end of this time she complained to her friends of a

numbness and weakness in the left hand, extending up the arm. Three days before admission she was seized, after retiring, with a strong epileptiform fit; both sides affected; foaming at the mouth; tongue not bitten. When this had ceased her left side remained paralyzed. She declared then and subsequently that she was unconscious from this period until her admission. It is certain, however, that the convulsions had continued, and that the left side was chiefly affected in the attacks. Presently, while I was watching her, she had a well-marked convulsion, without protrusion of the tongue, great suffusion of the face, stertor, loss of consciousness, or foaming at the mouth. The character of the convulsion was hysterical. Chest normal; bowels confined; urine normal; no signs of paralysis about the face; tongue protruded in a straight line; sensibility of left side unimpaired, though there was loss of motion, which was absolute during the convulsion; pulse 56, with well-marked intermission every fourth or fifth beat; respiration slow. These convulsions were very numerous indeed. On the following day, a drop of croton-oil was given by Dr. Buist, in half an ounce of castor-oil, and a blister applied to the nucha. On the 6th, as there had been no action from the bowels, an ounce of Epsom salts, followed by a warm enema, was given without relief. In the evening she was passing her urine involuntarily. I ordered one drop of croton-oil and four grains each of calomel and podophylline, which brought away several dark and offensive stools the next day.

At this time the diagnosis was obscure—her condition was such—convulsions constantly recurring, hemiplegia perfect, strength feeble, and expression bad—that it seemed inhuman to dwell upon hysteria, though the convulsions, which I had frequent opportunities of showing to the class, were uniformly of the character described. Under these circumstances, I requested Dr. Clark to visit her, who thought, with me, that time was a necessary element in the diagnosis. After evacuation of the bowels the pulse had risen to 80, and

the convulsions became less frequent, and in the evening she seemed better, and more rational. Four leeches were applied over the painful spot elsewhere described, and which was so suggestive of hysteria. 15th.—She has remained pretty much in the same condition. Control over the bladder now regained. Convulsions no longer affect the right side. Voluntary motion of the leg has been regained, and she is now able to raise her left arm. Ordered one grain of the valerianate of iron three times a day. 19th.—Has improved so rapidly that she can now walk the ward without assistance. Since this time she has continued to improve, and did well.

The following case likewise presented convulsive movements from the poisonous effects of stramonium in a well-marked manner. In the case of the boy referred to, the seeds had been picked by the little fellow in a garden in this city. The cases bear on the differential diagnosis:

CASE 21.—*Poisonous effects of an infusion of stramonium-leaves injected in the rectum; recovery; subsequent conception.*

Mrs. —, aged 22, of slender build, but of average health, had, however, menstruated rather profusely for some years before marriage. Subsequently to that event she consulted me for great pain in the back, irritable bladder, with difficulty in passing water, and trouble in defecation as though from some obstacle. On vaginal examination I found a uterus of normal size quite retroverted, and presenting a slight patch of abrasion around the os. A full-sized sound could be readily introduced to the fundus, and restoration of position effected, and with some little attention in the way of subsequent reposition, and a few applications of the nitrate of silver, these symptoms (which had been of recent date) disappeared. Irritability of bladder and neuralgic pains would occasionally demand relief on subsequent occasions, but the displacement was never reproduced. Benzoic acid internally,

and an occasional opiate vaginal suppository, were generally successful. Nineteen months of married life had thus passed, with but one ungratified wish—viz., for children. In May, 1860, I was consulted one Sunday for constipation and some wandering pelvic pains, and ordered some laxative pills, and some two-drachm packages, containing in all $\frac{3}{4}$ iv. of stramonium-leaves. She was distinctly informed that the pills were laxative in character, and that the leaves were to be used as follows: viz., half a pint of boiling water to be poured on the contents of one package, and the liquid to be poured off in ten minutes' time, when it should be used as a vaginal injection. She took the pills, and then proposed to her husband to put the contents of all the packages in a pint of boiling water, and use the tea as an enema. He remonstrated with her, and argued that the pills were avowedly given to move the bowels, and that there would be no use in dividing the leaves in a number of packages, if I had desired that they should all be used at once. These arguments not prevailing, he went to the drug-store, and inquired whether this tea could be used in the rectum, or in the vagina alone? The apothecary referred him to me, but said that the remedy might be used in the rectum and in the vagina. Still the husband positively forbade his wife to use more than *one-quarter* of the tea which had already been prepared from the whole four ounces. This amount she then injected in the bowel, and came almost instantly into her bedroom, staggering wildly, and fell on the bed, unconscious. I was summoned hastily, and found her perfectly under the influence of stramonium; countenance flushed; eyes staring stupidly; pupils widely dilated; muttering incoherently, and unable to reply to questions; restless, uneasy, tossing, throwing herself suddenly forward; striving to get out of bed; grasping with her hands vaguely, as though under the influence of spectral illusions; picking at bed-clothes; pulse rapid and feeble; expectorating occasionally a thick mucus, without regard to where it fell. When allowed to get up, she staggered

vaguely in a purposeless manner, and appeared quite blind. I gave a large enema to wash away any of the poisonous injection which might be retained. There seemed to me no further indication for treatment beyond the necessity for supporting strength, and the question as to the advisability of the hypodermic injection of morphia. Not being willing to assume this responsibility, I summoned Prof. Van Buren, and we then sent for Prof. B. W. McCready for further advice. Some time elapsed before his arrival, and meanwhile the patient had begun to show some improvement and a tendency to sleep—from which, however, she would suddenly waken every little while, and presented all the symptoms described, strikingly like those in the case of the boy poisoned by stramonium-seeds which I have published in the *New York Journal of Medicine*. It being agreed not to give opium, we left the patient to the influences of time. She remained in a somewhat similar state all the next day, though able to speak, but on the following morning she recognized her friends. The pupils remained dilated for a week, after which time no ill effects were experienced.

It is an interesting fact, that the next period occurred shortly afterward at the regular time, and was followed by impregnation. Whether post or propter hoc I am unable to say. She has been confined since that time, in all, with three children, and enjoys good health.

CHAPTER III.

CHLOROFORM AND VENESECTION IN PUERPERAL ECLAMPSIA.

Chloroform in puerperal eclampsia.—*Case*: Alarming symptoms from chloroform in a natural labor.—*Case*: Alarming symptoms from sulphuric ether in an operation for urethro-vaginal fistula.—Chloroform in cardiac disease and syncope.—*Case*: Syncope after labor, and subsequent history.—*Case*: Powerless labor; delay; cardiac murmur; ether; forceps.—*Case*: Amylene.—Venesection.—*Case*: Puerperal eclampsia; venesection.—*Case*: Puerperal eclampsia; forceps.—*Case*: Puerperal eclampsia; forceps.—*Case*: Puerperal eclampsia; no albumen; forceps.—*Case*: Puerperal eclampsia; venesection; cups; chloroform.—*Case*: Puerperal eclampsia; venesection; cathartics; forceps.—*Case*: Puerperal eclampsia; chloroform; cups; forceps.—*Case*: Puerperal eclampsia; cups; chloroform.—*Case*: Twins; eclampsia; chloroform; Purgatives; cups.—*Case*: Puerperal eclampsia; mania.—*Case*: Puerperal eclampsia; chloroform; cathartics; emetics; venesection.—*Case*: Puerperal eclampsia; no albumen.—*Case*: Puerperal eclampsia; forceps; normal dilatation.—*Case*: Puerperal eclampsia.—*Case*: Albuminuria; intra-uterine hydrocephalus.—*Case*: Bright's disease; puerperal eclampsia; chloroform; Barnes's dilators.—*Case*: Albuminuria; eclampsia; death before delivery.—*Case*: Albuminuria; eclampsia; death from apoplectic clot with atheromatous degeneration of vessels.—*Case*: Albuminuria; eclampsia.—*Case*: Albuminuria; induction of labor; mania; subsequent history.—*Case*: Albuminuria; eclampsia; induction of labor.—*Case*: Albuminuria; eclampsia; induction of labor; craniotomy.

If only one method of treatment were given to me for these cases, my choice would unhesitatingly be for chloroform. The chief indications are, to terminate the labor as speedily as may be justifiable, and meanwhile to keep the patient moderately under the influence of chloroform.

In looking over my cases, while recalling some in which the agent was administered unskilfully, I see every reason

for believing that chloroform is the most prompt and certain agent that we possess for moderating the violence and preventing the recurrence of the convulsions.

In this, as in all other cases where anæsthetics are used, the choice must be made between chloroform and sulphuric ether; and a man's practice is influenced by his familiarity with one agent rather than with the other; by the judgment of the consultation, and by the prevalence of opinion in the locality where he may chance to practise.

In general surgical practice, and for general use, there is a preference in New York for sulphuric ether. Some years ago a patient died under chloroform in the surgical wards of the City Hospital, and that agent was then banished from use in that institution. But since that time another one has died there from ether, and this anæsthetic continues to be used, from the conviction of the staff, that it is safer than chloroform. On the whole it is generally believed in this city that sulphuric ether is safer for surgical operations. Hence, a man in this city who should have the misfortune to lose a patient by an anæsthetic, would have more sympathy and approval if he had used sulphuric ether, than if he had selected chloroform.

These influences do not, however, obtain to the same extent in obstetrics, for therein chloroform has been shown to act reliably, powerfully, and with trifling risk; while in no class of cases are its benefits more apparent than in those we are considering. In Bellevue I have lately fallen somewhat into the habit of using sulphuric ether in obstetric operations, though in my experience the use of this agent in obstetrics bears no relation whatever in frequency to that of chloroform.

The Bulletin of the New York Academy of Medicine for December, 1861, contains a report of my remarks on the uses of chloroform in obstetrics, in the debate on the valuable paper of my colleague, Prof. B. Fordyce Barker, in which I see very little to change. Before that time, however, I had given sulphuric ether scarcely at all in obstetrics, but since

then I have used it in a number of cases. In one I have found it better borne than chloroform, the latter agent depressing the pulse, which intermitted under its use, while ether produced a stimulating effect. The labor was natural. There is no difference in the effect of ether or chloroform upon the labor-pains, so far as my experience goes. This stoppage of the pains, or diminution of their force, which demands that chloroform should be occasionally denied to a patient, is produced as readily by ether. In the same labor I have several times seen these agents equally and successively produce this effect, and the pains improve after each withdrawal. Hence the patient has been deprived of their benefit, as the alternative was an operation. In but one case have I personally met with alarming symptoms when I have given chloroform to a woman in labor.

CASE 22.—*Alarming symptoms from chloroform in a natural labor.*

This happened in a second confinement. In the first the lady had borne it admirably well, and had been delivered in the country with forceps of a very large and fine boy. In the second she came under my care; every thing promised favorably. The dilation of the cervix was going on satisfactorily, the pains not very frequent but efficient, and I administered chloroform at her urgent request. When the pains came on I gave a little on a handkerchief, and, when they were over, stepped into a dressing-room at the head of the bed to look over a book, returning when summoned by her cry for "more chloroform." On one of these occasions I gave her a few drops on the handkerchief, and held it, as usual, to her face, when she suddenly stopped breathing, and the pulse ran down in a most alarming way. I instantly commenced the use of Marshall Hall's method, and was relieved beyond measure when she began to breathe again. She implored us all to continue the chloroform, but she got no more, and has done perfectly well.

In the following case the patient came very near dying from the effects of sulphuric ether during my service in April, 1867; and those accustomed to use anæsthetics can well appreciate the anxiety of the situation. The coincidence of such perfectly-closed jaws, with the entire abolition of consciousness, is interesting, and could scarcely have been expected if chloroform had been used.

CASE 23.—*Urethro-vesical fistula; dangerous symptoms from sulphuric ether as an anæsthetic; commencing cystitis relieved by the failure of the operation.—Dr. Nicoll, House Physician.*

Elizabeth Wheaton, aged 33; Irish; servant; married; has had four children; two labors very difficult, but not instrumental. No history of syphilis. Has acne rosacea, and syphilis is suspected. Periods began when she was eighteen; menstruation has been irregular. Eleven years ago she states that she had prolapsus uteri, resulting from parturition, and since that time has been subject to leucorrhœa. To relieve this complaint she was accustomed to use vaginal injections, employing for the purpose a glass syringe. Five years ago, while injecting herself, she fell and broke the syringe, and since that time the urine has constantly escaped, except for a few weeks immediately after an operation performed three years ago. She has had two operations performed on her during the last year without relief. The fistula is about half an inch in diameter, situated at the junction of the urethra and bladder, involving the sphincter vesicæ, and bounded by cicatricial tissue.

She was brought under the influence of sulphuric ether for an operation on the 20th of April, 1867, having previously taken one potato for dinner. The inhalation commenced at 2.10 P. M., and twenty-five minutes elapsed before she could be satisfactorily anæsthetized. Five silver sutures were used, and the edges carefully brought together in a

longitudinal direction, in the presence of Dr. Gouley and the house staff, by Dr. Elliot, and at 4.10 the patient was carried to bed and well blanketed. She had borne the anæsthetic admirably, and had vomited a small quantity once. Within five minutes after she was placed in bed her pulse ran down to 45, and was scarcely perceptible. Respiration 24, and regular. Mouth closed, and teeth so firmly set that nothing could be given by the mouth. Four ounces of whiskey were therefore given by the rectum, and held up; strong ammonia held near the nostrils, and bottles of hot water packed by the extremities. Soon after two ounces more of whiskey were given by injection, her jaws being still closed. At this time she had a short but severe chill. By the end of an hour her pulse had improved in frequency and volume. She had vomited several times. At 6 P. M. her pulse was 72; respiration 22, and the mouth could be opened. No cutaneous sensibility or manifestation of consciousness. No movement when the conjunctivæ were touched by the finger. By half-past six her mouth could be opened readily, and occasionally she would make an attempt to swallow, and toss her arms about. By eight o'clock she could understand when spoken to loudly, and mutter a few words, but she was not fully restored to consciousness until midnight.

It having been decided not to leave a catheter in the bladder, the urine was drawn every two hours. During the first twenty-four hours it amounted to sixteen ounces and six drachms, and was normal. On the 21st, at 5 P. M., she began to suffer pain when the site of the bladder was pressed on, and had a constant desire to pass water. During the night the urine became dark-colored and thick, and it pained her when the catheter was introduced; the pain persisting until the instrument was withdrawn. On the morning of the 22d turpentine stupes were applied to the hypogastrium; the bicarbonate of potash and demulcents given; and the bladder was washed out three times a day with warm water. On the

following day urine escaped from the vagina, and the fistula was recognized to have reopened. 24th.—Urine drawn with catheter, nearly healthy in appearance. None has escaped from the vagina for twenty-four hours.

The subsequent history of the case showed the operation to have failed, but the relief of the vesical irritation was coincident with the reopening of the fistula.

Cardiac Disease and Syncope.—In cases of cardiac disease, and where there is a tendency to syncope, I prefer to use sulphuric ether for the reasons given, rather than from any belief that there is more danger in obstetrics from one agent than from the other. I might be unwilling to give an anæsthetic if I believed that marked fatty degeneration of the heart were present. Yet I know from my records, that I have given chloroform with safety in cases where death has occurred from other pathological conditions, and where the fatty degeneration was proven by the microscope. Undoubtedly, therefore, it is very often given where this fatty degeneration is not even suspected. There are other conditions in which the heart's action is irregular or intermittent from functional disturbances, in which, if an anæsthetic had to be given, I would prefer to use ether, because the majority of our practitioners believe it to be safer.

The heart should always be examined before an anæsthetic is given, and stimulants should be administered in advance if there be debility. Cases of syncope during or after labor, without hemorrhage, or other sufficient cause, may be very alarming; and I suspect that many of them are associated with fatty degeneration of the heart; a condition so often difficult to diagnosticate with certainty. This suspicion is strengthened by the following history.

CASE 24.—*Syncope after labor.*

Mrs. — fell in labor with her fourth child on the 24th of March, 1861. Her previous labors have been difficult

from the size of her children (which have all been born alive), and from the fact that in each case before this one the occiput has turned posteriorly. The first child was delivered with forceps, by Dr. Metcalfe and myself; the other two were delivered naturally. She has taken chloroform in every confinement, in the first for nearly twelve hours; and she has also taken it for operations on the teeth, and for sick headache. She is a healthy, strongly-built woman, with no disease that I can recognize, although she has always been liable to a peculiar lividity of the lips, and subject to attacks of syncope, which have demanded no especial treatment.

On the present occasion I was called about 8 A. M., March 25th, but made no examination until after ten o'clock, as I knew, from a previous one rendered necessary by false labor-pains, that the presentation was natural. At 10 A. M. the os was fully dilatable, membranes unruptured, head passing through the brim in the first position. I then left for an hour and a half, after forbidding the use of chloroform during my absence, as I was desirous that all the voluntary efforts should have full play. When I returned I found that the pains had been very severe, and that the anæsthetic had been withheld from her with difficulty. The head was now on the floor of the pelvis, the membranes unruptured, and I allowed the moderate use of Duncan and Flockhart's chloroform during the pains, to an extent sufficient to deaden sensibility without rendering her unconscious or unable to see what was going on in the room. The child was born at a quarter-past twelve, when I deepened the influence of the agent to insensibility, and allowed her to remain unconscious for not more than five minutes. The membranes ruptured just before the birth of a living male child, weighing $11\frac{1}{2}$ lbs., when the anæsthetic was discontinued, and the patient immediately awakened without assistance, and the customary congratulations of the lying-in chamber were interchanged. With the child there came about a double handful of clots,

and no further hemorrhage occurred at any time. The uterus contracted firmly around the placenta, and after following it down with my left hand, I sat by my patient's side to insure the maintenance of permanent uterine contraction with my hand, as is always my habit. The placenta was expelled from the vagina without assistance after a few moments, the membranes remained in utero, but soon came entirely away, after they had been twisted, and carefully manipulated, after which I remained quietly by the patient, grasping the uterus steadily, and watching its behavior. The contraction was so permanent, that I was about to apply the binder—the friends had been admiring the child, and the mother, joining in the conversation, had desired that the child should be brought to her, and had examined and caressed it, without raising her head from the pillow. In short, every thing was going on in the most natural manner, when, without any apparent reason, certainly without hemorrhage, the mother suddenly fainted, and the pulsations of the radial artery became indistinguishable. Retaining my grasp of the uterus, I sprang on the bed, and raised the legs and pelvis high in the air with one hand, while maintaining my grasp of the uterus with the other, ordering the while that the pillow should be taken from under her head, that the window should be opened, and that cold water should be dashed on her face. She rallied, but so imperfectly that I sent one bystander for medical aid, while another fed her with brandy, and a third went in search of aromatic spirits of ammonia and beef-tea.

And now began a series of fainting-fits of the most alarming character, with prostration like that of approaching death by syncope, soon aggravated by distressing nausea and vomiting. The surface became very cool, the features pinched, the complexion livid. Consciousness returned in the intervals of the fainting-fits, when she was calm, but complained of dreadful sufferings from dyspnœa. I may say, once for all, that for nearly three hours I maintained, or caused to be

maintained, continued grasp of the uterus, though it was all the while well contracted, nor did hemorrhage take place; but I felt that the loss of a very trifling amount of blood would turn the scale. There was no evidence of uterine laceration; the heart sounds, though very feeble and rapid, could both be heard, and there was no physical sign of disease of that organ; there seemed no other indications than to keep the blood in the head and trunk and support the strength. Thus in addition to brandy by the mouth, fresh air, sprinklings, elevation of pelvis, legs, and arms, bottles of hot water held to the legs and feet, chloroform as a counter-irritant to the epigastrium; I also controlled one femoral artery. In rather less than three-quarters of an hour, I had the gratification of seeing Professor Gilman enter the room, who fully recognized the very critical condition of my patient, and aided me most efficiently in the struggle for her life. When finally it was evident that nothing could be retained on the stomach, we gave brandy, and subsequently brandy and beef-tea by enemata, which were kept in by firm pressure against the anus. An hour or two later Dr. Metcalfe came, by which time the fainting-fits no longer coincided with diminished volume of pulse. Her thirst was very great, but her stomach could retain nothing; though after vomiting, her dyspnœa would be temporarily relieved. Stomach large and tympanitic. Pulse about one hundred and thirty, regular, but feeble. Nitric acid and subsequently hydrocyanic acid were given, and after several stimulating applications to the epigastrium, a blister was applied.

By evening we felt that the chief danger was over for our patient, who had previously calmly and without a murmur resigned herself to die, and the proposition of Dr. Gilman to add opium to the injections was adopted. I remained with her the entire night. The vomiting ceased about midnight, nor did it return, and she dozed somewhat. In addition to the brandy given by the mouth, I injected into the bowels ten and a half ounces of brandy in beef-tea, with a hundred

and sixty drops of laudanum, as well as a grain of the watery extract of opium.

June 14.—She has made a slow and tedious convalescence, without, however, suffering from any other symptoms than profound debility and tendency to syncope. She nurses her child, and is now able to take a very fair amount of exercise, and has increased in weight. The treatment has been solely of a supporting and stimulating character. On one occasion shortly after her confinement I thought that I could detect a faint systolic basic murmur, but it did not reappear on the next examination, and I have been loath to fix her attention too much on her heart, which is certainly not hypertrophied. During the consultation neither Dr. Metcalfe, Dr. Gilman, nor myself could ascertain more than I have noted.

In my memoranda at that time the following remarks occur: The key to these phenomena may possibly be found in cardiac lesion; they may possibly have been induced by the anaesthetic, though I submit that a careful examination of the case does not in my opinion substantiate that theory; while it is too well known that we have yet to seek the explanation of many cases of sudden death after labor; and that in many no one could prognosticate lesions only discoverable by an autopsy.

Subsequent History.—Four years later this unfortunate lady consulted me, on her return from a visit to a sulphur spring, for some irregular chills, and other symptoms which resembled former attacks of intermittent fever for which she had been treated. She was menstruating at the time, had been regular, and did not suppose herself to be enceinte. However, on the following morning she was suddenly delivered of a three-months' foetus. Dr. Metcalfe being in the immediate neighborhood, was called, and delivered so much of the placenta as he could get away. The day passed quietly, and on the following morning, Dr. Swift being present, I removed all of the remainder but a very small portion. It was soft, friable, and foetid. This portion was so at-

tached that I finally left it, thinking that risk less dangerous than removal. Subsequently symptoms of pyæmia showed themselves, the peculiar sweet breath first attracting my attention. Prof. Metcalfe saw her with me for some days, and then left town, with the conviction that she would do well. Prof. Thomas supplied his place, and shared the favorable opinion. At last, on one visit, he and I found a good pulse, perfect intelligence, freedom from pain on pressure anywhere over the abdomen, or by conjoined manipulation, and, in short, such symptoms as made us both attribute my anxiety to my personal relations to the patient. Within an hour after this visit a change occurred, and I saw that she must die, as, indeed, she did within a few hours, peacefully, free from pain, conscious to the last.

The autopsy was made by Dr. Gouley, in the presence of Profs. Alonzo Clark and Thomas, and the following memoranda were written by the latter gentleman :

"Post-mortem Examination of the Body of ———, September 8, 1865.—Examination fourteen hours after death. Weather warm; thermometer at 75°. Rigor mortis well marked.

Upon abdominal section evidences of general peritonitis were discovered. The intestines were much distended by gas, and bound together by recently-effused lymph. The capillaries of the peritoneum were everywhere found injected, and the whole surface was bathed in pus. About three pints of sero-purulent fluid were removed from the cavity. On, or rather over the fundus uteri, an abscess holding about two ounces of pus was found; one wall formed by meso-colon, and the other by fundus uteri. This abscess extended down into the recto-vaginal cul de sac, and in it the fibriated extremity of left Fallopian tube was immersed.

The uterus, ovaries, and Fallopian tubes being removed, an examination of them revealed these facts: The abscess at the fundus uteri was due to acute inflammation of the left ovary, which had discharged itself into the space above men-

tioned. A piece of foetid placenta, about the size of a half dollar, was found attached to the left horn of the uterus. The uterine cavity was about five inches in length.

Heart—a clot was found in left auricle; the tissue was flabby, and so soft that the finger could be readily thrust through it at any point. To the naked eye it appeared fatty, and the microscopic examination by Dr. Gouley showed fatty degeneration. The mitral valves contained a considerable amount of atheroma. The spleen was hypertrophied, and its Malpighian bodies were very large. The kidneys were perfectly healthy. No other organs were examined.”

In this case the heart sounds were clear and very distinct, and the impulse perfectly marked to the day of the patient's death. Although the previous history had made us search most carefully for the evidences of disease of that organ, none could be recognized. It is my belief that the fatty degeneration existed at the time of the dangerous syncope, and was one of its factors.

CASE 25.—*Powerless labor ; delay ; unexpected change of fetal head ; forceps ; sulphuric ether for cardiac murmur.*

Mrs. —, primipara, was confined September 19, 1861. Duration of labor, twenty-four hours. At the commencement of labor the head presented in the first position, a fact recognized by Prof. Barker and myself. The progress was slow and unsatisfactory, pains ineffectual, and not strengthened by $\frac{3}{4}$ j. of Squibb's fl. ext. of ergot, and $\frac{3}{4}$ vj. of Neergaard's saturated tincture. After waiting twenty-four hours, Dr. Thomas was called in consultation, and I requested him to decide the question of interference. He advised the use of forceps, and recognized the posterior fontanelle just behind the right acetabulum, where indeed it was, having passed there during the twelve hours or more which had elapsed since my examination of the position. As she had a systolic, mitral, cardiac murmur, she was brought under the influence

of ether by Dr. Thomas, when I delivered her of a living female child with forceps. The parietal bones were remarkably thin and parchment-like, and the sutures quite wide. The placenta was so tightly grasped by irregular uterine contraction, that it had to be removed by the hand. The child had some hemorrhage from the vulva on the fourth day, after which it did well. Mother recovered perfectly. In the subsequent pregnancies of this patient, which have been numerous, she has always taken ether, and has done well.

CASE 26.—*Forceps for delay; amylene. Bellevue—Dr. J. C. Draper, House Physician.*

Eliza Douglas; aged 29; second confinement; labor commenced May 17, 1857, at 6 A. M., and was terminated on the 18th, at 8 P. M. Position R. O. A. Before applying forceps, $\bar{5}$ iij. of amylene (all that I had with me) were given to the patient, without successfully inducing anæsthesia; chloroform was then administered, and the patient promptly put to sleep, when I delivered a female child, weighing between seven and eight pounds. The child did well, I believe; mother recovered. This is the only case in which I have ever used amylene, its behavior in that instance not tempting me to experiment further.

Venesection.—We are tempted to use venesection in cases of puerperal eclampsia by the recommendations of authors, and of so many practitioners—by clinical traditions in short—as well as by the appearances of great congestion observed in the head and face during the progress of the attacks. The purple, livid face and lips, and tongue; the congested conjunctivæ; and the duskiess of the skin, which is often observed; suggest abstraction of blood as a measure of relief. If we analyze our apprehensions, however, we find that extravasation of blood upon the brain is what we chiefly dread; and if we examine the records of autopsies we find that such a contingency is extremely infrequent, and probably

associated in the majority of cases with fatty degeneration of the blood-vessels of that organ.

Nor can it be said that cerebral extravasations are infrequent because of venesection, for statistics show that we may assert the fact in cases where this treatment has been discarded.

Moreover, it may safely be said that a majority of the severe cases of eclampsia occur in patients who are anæmic, and whose subsequent histories display tendencies to hydræmia, and that a roborant treatment with iron is most generally indicated after the immediate dangers of the confinement shall have passed. It is obvious that copious abstraction of blood, during the progress of these attacks, must therefore unfavorably influence the future convalescence of many of these patients.

Another and natural argument for venesection at the present day, may be found in the likelihood that it may remove some of the poisonous principles which are supposed to affect the nervous centres; but we may eliminate these by other channels, and meanwhile powerfully control their influence by chloroform, until we shall have terminated the labor.

Still, in patients of a plethoric habit, and more especially in cases where we suspect that atheromatous degeneration may be present, the moderate abstraction of blood may be a judicious practice, and not liable to do harm. But large and repeated bleedings do not seem to me to be indicated. Where there are evidences of anæmia, the abstraction of blood should be resorted to with the greatest hesitation.

In a great majority of my cases blood has been taken, though rarely by venesection, and in moderate quantities. In most wet cups have been used, a process applicable in various parts of the body, which adds the advantage of counter-irritation to the treatment, and measures accurately the amount of blood which is withdrawn, without the risk, so common in venesection, of taking more than is desired.

I find myself resorting less frequently to this practice

even, or with less confidence in the abstraction of blood in each succeeding year. In some cases it has seemed to me that the application of dry or wet cups over the kidneys has favorably influenced the action of diuretics.

In the following case venesection seemed to act very favorably :

CASE 27.—*Puerperal eclampsia; venesection. Bellevue Dr. Levi Warren, House Physician.*

Margaret Maloney; aged 17; primipara; delicate-looking; complained for two days of some pain in the head as well as in the right side and stomach. Some castor-oil was given in the evening of October 11th, which had operated twice by 9 o'clock, when Dr. Warren was summoned, and found her breathing stertorously, with a pulse of 160, rather small, hard, and incompressible. Sinapisms to the feet were ordered, and an injection of assafoetida and turpentine. In five minutes a second convulsion came on, when she bit her tongue; a cork was then introduced between her teeth. A third and fourth immediately succeeded each other, merging into a convulsive paroxysm which lasted forty minutes, and only yielded to chloroform. Os dilatable and about the size of a dime. Sclerotic conjunctivæ, at first pale and healthy in appearance, were now (10 p. m.) much congested; pupils, before natural, were now contracted; face flushed, livid, congested; breathing stertorous and labored; pulse 160, hard, small, and incompressible as before. Her head and shoulders being now somewhat elevated, she was bled from a good-sized orifice to about twenty ounces, when she showed signs of commencing syncope. 11½ p. m.—Pulse 130; respiration 32, and quite easy. 12½ a. m.—Pulse 115, full, soft, and compressible; pupils natural; respiration natural; some jactitation; not altogether conscious.

October 12th, 2 a. m.—Quite restless; much jactitation; pulse and respiration as before; os dilated to the size of a

twenty-five cent piece; labor-pains now commenced; she recovered from her stupor and became rational; membranes ruptured at 3 A. M.; head came to a R. O. A., and at a quarter-past four she was delivered of a still-born child, weighing five pounds and a quarter. Placenta came away immediately. Urine albuminous, but not markedly so. *October 13th*, 9 A. M.—Pulse 100, and quite feeble; some vertigo. At noon pulse 112, and stronger; appears drowsy and indifferent to what passes. From this time she continued to improve, requiring for some two or three days small doses of morphine with a little brandy, and on the 30th was discharged, well.

This case happened some ten years ago, and was seen by Prof. McCready and myself.

CASE 28.—*Puerperal eclampsia; forceps.*

Hannah Lane; aged 20; first; L. O. A. In labor three hours. Still-born female child, seven and a quarter pounds. Dr. Chas. Phelps, House Surgeon, Bellevue.

First seen by Dr. P. at 7 P. M. in a convulsion, which was rapidly followed by others with decreasing intervals of rest. In these intervals she was at first conscious, but soon became utterly insensible. Urine loaded with albumen. Sp. grav. 1011. Olei tiglii crotonis gtt. j. I saw her at half-past nine, breathing oppressed, frequent, and stertorous, mouth covered with foam, tongue protruded, pupils contracted. Conjunctivæ suffused, face persistently livid, lips markedly so, tongue very dark. Pulse 148, laboring and very hard. Uterus dilated to the size of half a dollar, thin, somewhat rigid and undilatable. Membranes ruptured, though much liquor amnii remained. Head in first position—foetal heart inaudible. While observing these facts, another convulsion of a very violent epileptiform character occurred, ushered in by pleurosthotonos. Both arms of the patient bore traces of previous venesection. Under these circumstances, Dr. Taylor (who had arrived) concurred in recom-

mending venesection, and Dr. Phelps took about $\frac{5}{8}$ xx pleno rivo from the arm; after this the pupils dilated, lips and tongue became much paler, but the pulse very feeble. She was then carried carefully into the lying-in ward with her head down. Pains continued strong, and in about three-quarters of an hour the os had dilated sufficiently to admit the forceps, and I delivered her with forceps of a still-born child. No convulsions after delivery, but the patient remained in a semi-comatose and very restless condition till 5 A. M., when she died.

Memorandum of autopsy not preserved.

CASE 29.—*Puerperal eclampsia; forceps.*—Drs. George S. Hardaway, House Physician, and Henry F. Andrews, Senior Assistant.

Catharine Murphy, aged 18, unmarried, primipara, fell in labor at Bellevue Hospital at 4.30 A. M., January 16, 1858. Pains strong till half past seven, when she was seized with a strong convulsion. Muscles strongly contracted; face deeply congested; teeth clinched; foamed at the mouth, but did not bite her tongue. After the convulsion the respiration was stertorous, and the face remained congested for some time, pupils acting sluggishly. After this the pains were less frequent, and feeble. Urine drawn off with a catheter, and found to be slightly albuminous. 9 A. M.—Convulsion, similar in character and consequences. Os fully dilated. Ant. fontanelle down in a line a little in advance of right eminentia-ileo-pectinea. Posterior fontanelle a little in advance of right sacro-il-syn. Fœtal heart most distinct at junction of supra-pubic and right iliac regions. Dr. Elliot ruptured the membranes at 11 A. M. Pulse 92.1 P. M.—Tr. Ergotæ 3j. 1½ P. M.—Another strong convulsion, during the stertorous stage of which Dr. Elliot applied his forceps with the pivot, and delivered without delay. No mark was left on the child, although one blade was applied over the face, and one over the occiput, rotation not having fully taken place. Perineum

somewhat lacerated. After delivery, hyd. chlor. mit. $\mathfrak{D}$ ss in butter on back of tongue, and in two hours ol. ric. $\mathfrak{z}$ j Half stupid till 4 P. M., when she had another convulsion, leaving her face deeply congested. Pulse 90, full and laboring. Put in a sitting posture and bled to $\mathfrak{z}$ xvj. Pulse became now less frequent and softer. No signs of syncope. Medicine operated freely at $5\frac{1}{2}$ P. M. Removed to a quiet room, and ice applied to her head. 7 P. M.—Rational and easy; pulse 104, soft. 7.35.—96. 9 P. M.—Another convulsion; 4 c.c. to nape of neck. Slept quietly all night. 17th.—Pulse 84–88. Condition good. Child well, weighing six pounds. Both made a good recovery.

A sample of blood was carefully examined by Prof. Do-remus, and found to contain no urea. Microscope disclosed granular renal epithelium, waxy casts, and blood corpuscles.

CASE 30.—*Puerperal eclampsia; urine free from albumen; forceps.*

Mrs. —, primipara, aged 22, fell in labor in the evening of November 19, 1861. She had previously consulted me regarding her prospects, and I had made two examinations of the urine, which gave me a good specific gravity and no albumen. No microscopic examination made. She was robust, well-built, healthy. Expression of face good, no puffiness. Some œdema of feet. Fingers somewhat swollen, rings removed. Bowels had been freely moved. I examined her on the 20th, and found the pelvis normal, os slightly open, soft parts not much relaxed, well-ossified head presenting in the first position. Fœtal heart to the left side. Uterine soufflé distinct over the umbilical and hypogastric regions. The pains continued during the day and night with moderate effect, dilatation of os steadily progressing, and its dilatability well marked. 21st, 9 A. M.—The membranes had now reached the floor of the pelvis, when they broke. At noon gave tr. ergotæ $\mathfrak{z}$ ss., as but little advance

was making. At half-past two the pains were better, when suddenly she endeavored to raise herself in bed, turned partially to the right, and presented the well-marked phenomenon of an epileptiform convulsion, biting her tongue. Gave chloroform immediately, and sent for a consultation. Dr. Thomas and Professor Gilman arrived, when Dr. Thomas took charge of the chloroform, and I delivered a living male child, weighing nine pounds, with the forceps. The frontal bone was depressed nearly half an inch below the parietal. The uterus contracted fairly, retaining the placenta entirely within it, and as the cord seemed very full of blood, it was cut just above the ligature, when a larger amount ran from it than any of the consultation remembered to have seen before, amounting, according to our estimate, to between four and five ounces. Drs. Thomas and Gilman now left, and I continued the influence of the chloroform. Some twenty minutes afterward the placenta had not passed into the vagina, and the fundus uteri relaxed in a curious way without enlargement, giving to the hand the sensation of an extremely thin uterine wall, so I made a more careful examination, and found the circular fibres tightly constricted, and the placenta retained as though in a bag with the mouth drawn. Deepening the chloroform, and dilating the cervix, I removed the placenta from the fundus, and after a good dose of ergot permanent contraction ensued. When the binder was on, the chloroform was discontinued, and consciousness returned, but the capillary congestion of the face, which was very marked, had not subsided, as it so generally does under chloroform. Pulse rather rapid and very feeble. Sent for Dr. Ross to apply wet cups to both temples, and had some $\frac{3}{4}$ v. of blood taken. When the cups were first applied a violent convulsion followed, and this was the last. Tongue saved from being bitten.

26th.—Has done well. Bowels free, lochia good, milk secreted. Urine normal in amount, any little excitement controlled and anticipated by morphia. *December 1st.*—

Has suffered intensely for three days from periodic headache, best marked a little after noon. Quin. sulphatis gr. x. 2*℥*.—Ears ring, headache relieved. Continue moderate prophylactic doses. *February 10th, 1862.*—Has done well, nurses her child. The protracted lochia have ceased. Uterus normal. Urine examined by Dr. W. H. Draper. Specific gravity 1009, not albuminous. Nothing under microscope but vesical epithelium. Has since continued well.

CASE 31.—*Puerperal eclampsia; venesection; cups; chloroform.*—*Dr. Samuel Forman, House Surgeon.*

Mary Conners; Irish; domestic; aged 24; married; primipara; a large, stout, plethoric woman; admitted to Bellevue February 1, 1858. No history of previous disease. Troubled with vomiting and headache during pregnancy. Entered lying-in ward in the night of February 14th, in labor. Her pains were strong, and at midnight she fancied that she saw men standing about her. *February 15th, 4 A. M.*—Pains still strong; complained that she could not see. 5 A. M.—First convulsion, followed by another in an hour. Not very violent. Os dilating; head presenting L. O. A. Another convulsion at 8 and another at 9, when she was seen by Dr. Elliot, and bled $\frac{3}{4}$ viij. from the arm. Pulse fell to 80. Somnolent. Urine drawn with catheter, highly albuminous; os dilating; head advancing; foetal heart beating in the left iliac region. Fifteen minutes after venesection a convulsion. Chloroform. Pulse 80. Pupils very much contracted. Delivered at 10.15. Woman unconscious at the time. Child feeble. 10.30.—Convulsion. Pulse 94. Ordered by Dr. Elliot ten grains of calomel mixed with butter, and $\frac{3}{4}$ j castor-oil four hours after. C.C., No. iv., over each kidney. Convulsions to be anticipated if possible by chloroform. At 11 grinding teeth; restless. Chloroform. Soon became quiet, and then conscious. 12.45.—Slight convulsion. Restlessness increasing. Chloroform. 1 P. M.—C.C. 2.15.—Three convulsions have been warded off by chloroform. Awoke now.

Said she felt cold, and was immediately convulsed, the seizure lasting about sixty seconds. 2.50.—Slight spasmodic movements. Pupils dilating during spasm, and then contracting. Chloroform. 3.10.—Restless. Chloroform till quiet. 3.53.—After some restlessness awoke, and immediately became convulsed. Lasted about twenty seconds. Chloroform. Strong stertorous breathing. Pulse 90; rather soft. 4.27.—Three times convulsions have threatened, and been warded off by chloroform. Some twitching of the eyelids being noticed, chloroform was given, but before she came under its influence sufficiently the spasm came on. Pupils dilated. Pulse 116. 4.40.—Another slight one. Chloroform freely. 5.20.—A very slight convulsion. No premonitory symptoms. Pulse 96. Pupils contracted after spasm. 6.50.—Three more restless attacks have been controlled by chloroform. Restless again. Chloroform. Convulsion lasting sixty seconds. 7 P. M.—Another lasting forty seconds. Afterward pulse 110. 7.20.—A violent convulsion, lasting ninety seconds. Afterward pulse 160. Soon after another less violent, and then pulse irregular and intermittent. Respiration 26. Chloroform. 9 P. M.—Three restless attacks controlled by chloroform.

Visited by Drs. Elliot and Taylor; decided not to bleed; pulse counter-indicating; advised C.C. to back of neck, and chloroform continued. 9.30 P. M.—Bowels moved freely after injection; C.C., No. iv., to back of neck; pulse 126, feeble; respiration 24; chloroform; quiet until 11.15; awoke, and had a violent convulsion, lasting a minute and a half; pulse after it 165. 11.30.—Restless; chloroform again; bowels moved again. *February 16th*, 2.30 A. M.—Has had no convulsion since 11.15; chloroform continued; pulse 100, feeble. 7.05.—Restless; chloroform till quiet. 7.20.—Restless; soon became quiet, sleeping; continued to sleep until 9.45, when awoke, became restless; chloroform again. 10.30.—Pulse 108; still quiet; at 11 restless; gave chloroform. 12 M. Awoke conscious for first time since first convulsion; put

under chloroform again; urine drawn; not so highly albuminous; bowels again opened. 12.30.—Asked for drink, went to sleep again; pulse 92, not so feeble; respiration 21. 4.30.—Pulse 120; respiration 18, asleep; has taken some nourishment; complains of headache. 7 P. M.—Restless; complaining that her sides feel sore; is conscious, answers questions readily; has no headache; beef-tea. *February 17th*, 2.30 A. M.—Pulse 108; awake. 3.30.—Passed urine in large quantity; sleeps nearly all the time. 10.30.—Awake; sensible; headache; lochia profuse; feels tired. *February 18th*, 9 A. M.—Pulse 100; sensible; complains that her head feels heavy; wants to eat. *February 19th*.—Urine drawn and tested; albumen much diminished in quantity; feels well; no pain; pulse feeble, not frequent. *February 20th*. Urine highly albuminous, becoming almost solid by heat and nitric acid; under microscope no abnormal appearance; urates abundant. *February 21st*.—Urine not so highly albuminous; epithelial cells of kidney looked unhealthy; no nuclei seen; appeared slightly fatty. *February 22d*. Still less albumen; pus-cells, from lochial discharge. *February 26th*.—Very little albumen; abundance of urates. *March 2d*.—But a slight trace of albumen; under microscope abundance of pus-cells; no epithelial cells found.

CASE 32.—*Puerperal eclampsia; venesection; cathartics; forceps.*

Catharine Walsh, aged 30; primipara; entered the Lying-in Asylum October 24, 1852. I first saw her at 1 P. M. Up to this time she had been washing, and now had to lie down as her pains had commenced. The os was very high up and just sufficiently dilated to admit my finger. I noticed nothing unusual, and left the house for two hours. On my return I found her comatose, and learned that she had suffered three convulsions. No treatment had been used except cold to the head. Her singularly robust, plethoric temperament, her full hard pulse, and the progressively increasing character

of the convulsions, determined me to bleed her. I took $\frac{3}{4}$ xij of blood, when consciousness returned. Ordered an enema of soft soap and the sulphate of magnesia; ice to the head; feet and legs to be kept warm. Consciousness had returned between the former attacks. In reply to her earnest questioning, I informed her that she had fainted—nothing more. I then noticed œdema of the legs, and found the urine loaded with albumen; no foetal heart audible; os uteri half dilated and high up. I also sent for Dr. Thomas F. Cock, one of the physicians of the asylum. At six she had a fourth convulsion, when I dashed two basins of water in her face without benefit, and then reopening the vein took $\frac{3}{4}$ xij more. Dr. Cock, then arriving, directed the administration of ten grains of calomel in butter, and some sweet spirits of nitre, but declined to allow the exhibition of chloroform, except during the convulsions. It was decided to use forceps when practicable. At eight she had a fifth convulsion, when I gave chloroform. At 9 p. m. Dr. Cook returned with Dr. Beadle, when the head being well within reach, I delivered her with forceps of a still-born male child. At 1 a. m. she had a slight convulsion, which was the last.

October 22, 1852.—Bowels moved by the calomel; doing well; pain on pressure over the kidneys; cupped over the lumbar regions to $\frac{3}{4}$ xij. The urine drawn off yesterday with the catheter displays casts of the uriniferous tubes under the microscope. From this time till she left the house she steadily improved; œdema gradually disappeared, and though there would occasionally be albumen in the urine, it was slight in quantity, and could not be depended on as a daily secretion. Her treatment has consisted in the steady employment of saline cathartics.

CASE 33.—*Convulsions; albuminuria; forceps.*—*Dr. E. W. Lambert, House Physician.*

A. McKay, unmarried primipara, in Bellevue, aged 19. Labor-pains commencing at 7 p. m., August 2d. Waters

broke while asleep at 9 P. M. Head presenting; os the size of a dollar, and very dilatable. Second fit at 10 P. M.; third in twenty minutes. Chloroform now, and Dr. Elliot sent for, and came immediately with Dr. William T. Green Morton, of Boston, who happened to be with him; applied the forceps, placing the pivot in the second hole, and delivered a living child without any laceration of perineum, although the vulva was very narrow. Placenta gave no trouble. Chloroform kept up for about twenty-four hours. Whenever the patient came from under its influence a convulsion would occur. Urine drawn with catheter, highly albuminous, though there was no trace of œdema, no congestion of face after convulsion. Specific gravity 1018; no blood; c.c. No. v. to kidneys; emp. vesic. to nape of neck. No attack of convulsion after midnight of the 3d. Vomited a great deal subsequently, relieved by the dilute hydrocyanic acid. *August 8th.*—Doing well.

Remarks.—In this case the forceps were introduced entirely within the os uteri, which readily dilated before the tractions with the instrument.

CASE 34.—Puerperal eclampsia; chloroform; cups; forceps.

Emily Gray, an unmarried Irish woman, thirty years of age, was driven from her home in the seventh month of her first pregnancy, and came to this country without friends or money.

She had resorted to very tight lacing as a means of concealing her pregnancy, and I had in my possession the iron corset-bone which she used to assist her. This, it will be remembered, is one of the causes assigned by Dr. Cormack for albuminuria in pregnancy.

November 21, 1852.—Her labor commenced under the care of Mr. Peck, of Ohio, and Mr. Walker and Dr. Meizner, of Kentucky—the first two being students of medicine.

At 1½ A. M. the os was fully dilated and the membranes ruptured; and at 2 A. M. she was in convulsions. Between the third and fourth, chloroform was exhibited by Dr. M., and I arrived at the house at the termination of the fourth. No other treatment had been resorted to. I found the pulse frequent, feeble, and compressible; utter unconsciousness, with stertorous respiration; eyes partially open, pupils somewhat dilated; no cedema of the feet or legs, or marked puffiness of the face; bladder somewhat distended, and when relieved by the catheter, nitric acid showed the urine to be loaded with albumen; parts well dilated; head presenting in the first position, and well down; pains moderate, and foetal heart inaudible. At the commencement of the fifth convulsion chloroform was exhibited, and its use continued until I had extracted a dead child with the forceps, removed the after-birth, and applied the binder. The uterus remained well contracted, and she had no other convulsions; her pulse was feeble, but rallied, and she was ordered an injection of soft soap and salt; gr. xij of calomel were given in butter, and Granville's lotion applied to the nape of the neck. Consciousness returned in about two hours.

1 P. M.—Found her complaining of fixed pain in the top of her head, and some reaction commencing; bladder relieved by the catheter; ʒ ij of blood were taken by cups from the temples; cream of tartar as a drink, with ʒ ij of sweet spirits of nitre during the day; feet and legs kept warm; absolute rest enjoined. In the evening she was restless, and the gentlemen gave her a full anodyne.

November 29th, 1 P. M.—Much improved; pain in head gone; pulse good; mind anxious and desponding; complains greatly of her tongue, which was severely bitten; decided pain on pressure over her kidneys. Ordered to gargle her mouth with a weak solution of the chlorinate of soda; saline drinks to be continued; bowels to be moved with an injection; and cups to be applied over the lumbar region.

November 30th, 1 P. M.—I found her extended *on the floor*,

apparently dead; I revived her and lifted her into bed, when I learned that, desiring to have a motion, she had arisen three times, and that on succeeding she had fainted. I impressed on her, and the kind old woman who had afforded her a shelter in her solitary little room, that such another imprudence would be probably fatal; and as the pulse was returning to its usual state, I left, after requesting that the catheter might be passed, as the bladder had not been emptied since the night before. She objected to its use; and the gentlemen left, promising to return. When they did so, the nurse pronounced her asleep, and they found her dead. She had been again in the upright position, and had had some of her linen changed, just after which she had sunk on the bed, asleep as the old nurse thought. I would especially mention, that she had passed a very comfortable night, and had expressed herself as much better on the morning of her death. No more than $\frac{5}{8}$ vj of blood had been taken by the cups.

Autopsy.—Twenty hours after death, by my friend, Dr. C. E. Isaacs. Brain firm and healthy, but remarkably pale—even the choroid plexus being of a much lighter color than natural; all the other organs healthy, excepting the kidneys, which were found to be enlarged and congested, but not changed in structure; the corpus luteum was beautifully marked; the urine which I drew off with the catheter before delivery was examined by Professor Clark, and found to contain blood-corpuscles, but no casts or fat-globules.

I may mention that although her feet and legs were not swollen when I was called to her, she had complained of very great inconvenience from that cause up to within a short time of her confinement.

I believe that she died from syncope, resulting from her efforts to give the least possible trouble to the old woman who sheltered her, and on whom she felt herself entirely without claim. Perhaps it would have been better to have refrained in the case from the abstraction of any blood.

CASE 35.—*Puerperal eclampsia; chloroform; cups.*

Mary Brady, an asylum patient, was in labor with her third child at 1 A. M., December 4, 1852. She had been troubled during the night with sparks and white spots flashing before her eyes, and suffered more than is usual from sickness at the stomach at the commencement of labor. I was called to her at 6 A. M. in consequence of her very weak state, and found a divided opinion among the women sleeping in the ward, whether she had had a convulsion some time before, or had only fainted, there having been no light in the ward at that time. I found her quite conscious, very pale, moaning and complaining of great pain in the head; pulse very feeble and compressible; extremities quite cold; os uteri dilated to the size of a dollar, and dilatable; with the parts well relaxed and the pelvis roomy, and labor-pains slight; head presenting in the second position, membranes unruptured; pulsation of foetal heart very distinct; bladder empty; no œdema anywhere. Stimulus appeared to me to be indicated, and I burned some brandy, which was grateful to her, and took my seat by her side with a guarded tablespoon ready. At 7 she had a convulsion. She partially raised herself in bed, with her eyes staring and pupils dilated, mouth wide open, and head thrown back; her body then became rigid, eyelids tightly shut, mouth closed as far as I permitted, and tongue protruded. The characteristic, convulsive, hissing, expiratory sound was heard for some moments, when stertorous breathing was established, and the convulsion ceased. In a short time consciousness returned; her pulse remained feeble, and the foetal heart audible, though much weakened, with the labor-pains unimproved: pain in head gone. Applied camphorated lotions to the head, and ordered a strong, stimulating injection, which very markedly increased the uterine contractions, and the labor rapidly progressed. At 8 the pain in the head returned, and there was only time to introduce the spoon-handle when she

had another convulsion similar to the one which I have described. As soon as possible, I exhibited chloroform, and kept up its influence. Labor progressed, and I ruptured the membranes. At half-past 9 the child was born, in the presence of Dr. Metcalfe, one of the physicians of the Asylum, for whom I had sent about an hour before. The cord was wrapped several times around the neck and once around the waist, and though pulsating feebly, the child was alive and did well. The placenta came readily away, and when the binder was applied she was allowed to revive, having been utterly unconscious since the administration of the anæsthetic. At 3 P. M. she had another convulsion, preceded by much after-pain, and this was the last. Urine drawn off with the catheter was very albuminous, and contained casts of the uriniferous tubes, with blood and oil-globules. No œdema of the feet or legs, nor puffiness of the face.

December 10th.—Up to this time, though feeble, she has done well. Urine still albuminous, but the quantity diminishing; seized to-day with violent headache, resisting cold lotions and enemata; cupped on the nape of the neck to $\frac{3}{4}$ iv with immediate relief. After this she continued to improve, nursed the child, and left at the usual time—expiration of a month—still with a very appreciable amount of albumen in her urine, though some days it would be entirely absent.

CASE 36.—Confinement; twins; puerperal eclampsia; chloroform; purgatives; cups. — Dr. W. W. Johnston, House Physician.

Elizabeth Fox, aged 23, born in Ireland, and unmarried, was admitted into Bellevue Hospital on the 4th day of May, 1866, in the ninth month of her first pregnancy, and stated that she had been in perfect health up to the time of her admission.

May 6th.—She complained to-day of her legs being swollen, and on examination it was found that her lower

limbs and abdominal walls were markedly anasarcaous. A purgative was ordered with powders of the bitartrate of potassa, $\mathfrak{z}$ i three times a day. On examining her urine, a slight trace of albumen was discovered, but no casts were found under the microscope by Drs. Johnston and Gamble.

May 7th.—She complains this morning of not passing her water freely. The bowels have been moved once. Ordered pulv. purgans in such doses as to keep the discharges watery. Bitart. potass. continued.

Dr. Elliot saw her to-day, and advised wet cups to be applied over the lumbar region, hot-air bath, and no meat.

May 8th.—The hot-air bath had a very good effect, and produced a copious perspiration. The cups were not applied until to-day. $\mathfrak{z}$ viij of blood were taken from over the kidneys. The bowels were freely moved during the night, and her urine is somewhat increased in quantity. The œdema does not, however, seem to have diminished, but rather to be increased since treatment was commenced.

May 9th, 11 A. M.—She complained of pain in abdomen. Under the impression that she was about to be confined, she was transferred to the lying-in ward.

May 9th, 1 P. M.—Dilatation of os commenced; it progressed very slowly, and in eleven hours the waters broke, and the head was found presenting in the first position. The child was born May 10th, at 2.15 A. M. Cord very short. A second bag of waters was then found presenting at the superior strait, which was ruptured, and a second child promptly delivered by the breech. Two placentæ. Third stage rapid. Both children born living; the first, a boy, weighed $6\frac{1}{4}$ pounds; the second, a girl, weighed $5\frac{1}{4}$. Slight hemorrhage followed the delivery of the placentæ, which soon ceased, and the uterus contracted well.

May 10th, 3½ A. M.—Well-marked epileptiform convulsion, with spasmodic contraction of all the muscles, and frothing at the mouth. As soon as this had passed off she became perfectly sensible of what was going on, and complained of

headache. Ice-bag to the head. 5 A. M.—A second. 7 A. M.—A third, after which she remained insensible. 8.—Convulsion. 8.20.—Do. 9.10.—Do. Enema given, followed by a copious movement. Sleeps in the intervals of the attacks. Respiration stertorous. Now and then restless, and throws herself about. Passes water involuntarily.

May 10th, 10 A. M.—Convulsion. 11.25.—Do. 12.—Do. 12.30.—Do. 12.45.—Do. 1.15 P. M.—Do. Pupils contracted. Pulse has ranged at 150. Now and then seems sensible of pain. Water now drawn. Pulse 164. Cups to the temples. About $\frac{5}{8}$ ij of blood removed. 2.20.—Respiration easier. Pupils more dilated. The endeavor has been made to control the convulsions by giving chloroform at the commencement of each. 2.30.—Convulsion. Hyd. chlor. mit. gr. x., pulv. jalapæ gr. x., given in butter on the back of the tongue. 3.10.—Hot-air bath, which produced profuse sweating. 3.25.—Some approach to consciousness. Is very restless. 3.50.—Two convulsions immediately succeeding each other. First very severe. 4.30.—Convulsion. Great restlessness. Chloroform. 5.—Face very much congested. Cups to back of neck; $\frac{5}{8}$ ij taken. Is more quiet than she has been for some time. Chloroform continued when convulsions threaten. Pulse 160. 5.50.—Convulsion; long in duration. Tinc. of aconite. 6.30.—Does not remain quiet. Moans, and grits her teeth. 8.—Convulsion. 8.10.—Do. Very restless. Pulse 162. Respiration stertorous. Pupils dilated. Urine drawn. 9.—Convulsion. 9.30.—Do. Beef-tea has been given now and then. Swallows with difficulty. Blister to back of neck. 10.15.—Two convulsions; one immediately after the other.

May 10th, 10.15 P. M.—Has had two large passages from her bowels. 11.30.—From this time chloroform was administered at such times and in such proportions as to keep her under the influence of it all the time. 12.20.—Two convulsions; interval of ten minutes between them.

May 11th, 1 A. M.—Is perfectly quiet under chloroform,

and had another passage from bowels. 1.30 A. M.—No convulsion as yet. 4 A. M.—Water drawn, $\bar{z}$ iij. 6 A. M.—Convulsion. Chloroform for an hour had not been given as persistently as before. 7 A. M.—Pulse 142. General surface warm. Pupils contracted. 9 A. M.—Water drawn, $\bar{z}$ iv. Pulse 140, and full. 11 A. M.—Has passed urine involuntarily. No convulsion. Periods of excitement lasting a few moments, followed by insensibility and quiet. Pulse 150. 11.30 A. M.—Pulse 138. Respiration 40. There seems to be an effort at return of consciousness. Pupils respond to light. Jalap gr. x., podophyllin gr. i. 1 P. M.—Pulse 160. Respiration 46. Spoke for the first time since May 10th at 4 o'clock. Bowels opened twice. Circulation in hands and lips very feeble. Mucus accumulates in larynx and impedes respiration. Endeavored to clear throat with probang. Partially successful. 3 P. M.—Respiration difficult. Lips blue. Fingers cold. Urine drawn, $\bar{z}$ viij. Respiration became more and more feeble, and she died at 3.10 P. M.

Autopsy.—Thirty hours after death. *Brain* healthy. Slight amount of sub-arachnoid effusion. *Lungs* emphysematous; otherwise healthy. *Heart* slightly hypertrophied; weight $\bar{z}$ xij.; under the microscope somewhat fatty, but degeneration not great. *Liver* weighed 4 lbs. $\bar{z}$ ij.; cells filled with small granules of fat, but with no large globules in the cells, or free in the field. *Uterus* healthy. *Kidneys* large, white, very much congested; stellated appearance of surface; weighed together $\bar{z}$ xij.

Microscopic Examination by Prof. A. Flint, Jr.—Cortical substance pale and granular, with red spots, apparently congested. The whitish portion was found to consist of tubes filled with dark granular matter, without a single perfect or even distinct cell. The granular matter filled the field. It was rendered pale by acetic acid. The Malpighian bodies were likewise filled with granular matter, so that the convoluted blood-vessels could not be distinguished. In the congested portions the same condition of the tubes and Mal-

pighian bodies was noted, and numerous imperfect crystals and granules of hematin were discovered. In the pyramidal substance the straight tubes were a little more natural in appearance than in the cortical, but even the cells were granular and indistinct.

CASE 37.—*Puerperal eclampsia ; mania.*—*Dr. Henry C. Eno, House Physician, Reporter.*

Mary Langdon ; aged 15 ; well developed ; born in England ; entered Bellevue Hospital May 13, 1865, to await her confinement. She represented herself as having been raped by two men in the street, and came to the hospital by the advice of some of her friends, but without the knowledge of her father, who was ignorant of her misfortune. Her urine was examined both chemically and microscopically several times before her confinement, and nothing abnormal observed. On June 7th, at 9.54 A. M., she was delivered of a male child, weighing 8½ pounds. The labor was easy, and the mother seemed doing perfectly well until 4.45 P. M., when she had a convulsion lasting five minutes. Sufficient chloroform was administered to control the convulsive movements. The catheter was immediately passed, and albumen detected in the urine, which was acid, and had a specific gravity of 1007. The patient's bowels had been freely moved every day for three weeks before confinement ; also upon the morning of that day. She was put into the hot-air bath, ice was applied to the head, and mustard over the kidneys. At 5.35 P. M. she had another convulsion, lasting three minutes. Chloroform was again administered. This convulsion, like the previous one, was marked by convulsive movements of the whole body, frothing at the mouth, and biting of the tongue, and was followed by a period in which the mind was dull and confused, and in which the patient complained of headache. At five different times during the evening the patient had involuntary startings, with grinning, and rolling of the eyes ; but

upon the sparing administration of chloroform these were controlled, and no more regular convulsions followed. At 8.15 p. m. the hot-air bath was removed, the patient having perspired profusely, her mind being clearer, and the headache gone. Pulv. Doveri gr. v. were also given by Dr. I. E. Taylor's direction, and the dose repeated at 9.45 p. m. At 11.15 the patient was sleeping, and continued so until morning.

June 8th.—Patient quite comfortable. Mind clear. No headache, but considerable thirst. At 9.30 a. m. gave ol. ricini $\bar{\text{z}}$ i. by Dr. Elliot's direction. Bowels moved freely in the evening. Slept much during the day, and a good deal of the night.

June 9th.—Patient continues to feel well. Her urine, of which she passed four pints during the twenty-four hours, is acid, specific gravity 1014, and contains much less albumen than previously; by the microscope nothing abnormal was discovered yesterday or to-day. Her bowels were opened by a small dose of the sulphate of magnesia. In order to prevent the secretion of milk, cloths soaked in spirits of camphor were applied to the breasts.

June 10th.—Patient seems quite well during the day. Her urine the same as yesterday. In the evening complained of pains in the abdomen, like after-pains. Quite uneasy and hysterical, but quieted by hyoseyamus and camphor, and slept.

June 11th.—More albumen in the urine, and specific gravity 1019. Dr. Elliot prescribed a drachm of the tincture of ergot, to control the after-pains, as well as to facilitate the passage of urine, which heretofore has been drawn by the catheter; also extract of belladonna in glycerine, to be applied to the breasts, which secrete but a small quantity of milk. Quiet during the day. In the evening more excitable. She sent for Dr. Eno, and explained that instead of having been raped she had been seduced, that she knew the father of her child, and could not have the child taken from her as her friends proposed. She screamed, and called upon

God and her father to forgive her, and seemed in great dread of the punishment which awaited her on account of her lies. Although she became at length more calm, most of the night was passed without sleep.

June 12th.—Still excitable, with a pulse of 100. The discharge from the uterus is becoming whitish. Her urine contains much albumen, is acid, specific gravity 1019, and the microscope reveals renal cells in abundance. Her bowels were moved by the sulphate of magnesia. Her milk is decreasing in quantity. Patient quiet during the day, but unable to sleep at night. Has no pain, but fears that she will have a great deal. Addresses her parents and sister as though they were present. Bemoans her sin; is restless, with eyes staring, and at times alternately crying and laughing.

June 13th.—Patient is quiet during the day; urine the same as yesterday, with the addition of casts waxy and finely granular. At night pulv. Doveri gr. viii. were administered, but without causing much sleep. She refused for a long time to take the Dover's powder, and was suspicious that we were trying to poison her. She declared her conviction that she was going to die, asserted that her flesh was rotting, called upon various absent persons by name, and was very incoherent generally. She passed her urine and fæces in bed.

June 14th.—Patient quiet during the day. Pulse 120. Tongue furred. Urine acid, sp. gr. 1015, containing albumen and renal cells. Her breasts were examined, and found to contain no secretion. At 8.30 p. m. the hot-air bath was applied for one hour, although the patient could only be made to submit to it with the greatest difficulty. She slept but very little during the night, although having taken pulv. Doveri gr. x., and presented the same train of symptoms as last night.

June 15th.—Patient seems a little better, with a pulse of 100, and tongue furred. Urine the same as yesterday, with the addition of casts waxy and finely granular, some having granular epithelium upon them, also amorphous urates and

dumb-bell crystals of oxalate of lime. Dr. Elliot prescribed hydrarg. bichloridi gr. $\frac{1}{12}$ ter in die, on account of its well-known virtues in cases of albuminuria, as well as to correct the character of the patient's stools, which were pale, fluid, and yellowish. One dose of the bichloride was given, and afterward, by mistake, $\frac{1}{12}$ of a gr. of calomel three times at the prescribed intervals. Patient slept considerably during the day and most of the night.

June 16th.—Patient slept much of the day. No change in the urine. Pulse 106. Tongue furred. At 3 P. M. she had a copious passage from the bowels, also some pain in the abdomen, rather increased by pressure. At 9 P. M. another free passage. Gave tr. opii. gtt. xxv. During the afternoon and evening the pulse was 140, and skin hot. Patient slept some at night.

June 17th.—Pulse 150 and weak, surface cool. No change in the urine. During the day the patient had six fluid and yellow passages from the bowels, in consequence of which pulv. Doveri gr. v. were prescribed at 6 P. M., to be repeated every three hours. Also egg-nogg was given every hour in tablespoonful doses. Patient slept well during the night.

June 18th.—Patient has a pulse of 140, and stronger than yesterday, with both skin and tongue moist. As her bowels had not moved since the Dover's powder was prescribed, it was suspended at 9 A. M. Her urine the same as yesterday. She became very much excited during an unfortunate interview with her sister at noon, and at 3 P. M. I found her with a pulse of 150, flushed cheeks, and dry tongue. At night she was much excited, and had a return of the same mental trouble, and the same inability to sleep which we have before observed.

June 19th.—As the patient had two passages during the night, pulv. Doveri gr. v. were administered. During the morning the patient had a mild delirium, manifested by talking to herself, inability to comprehend conversation, in-

coherency in reply, and striving to get out of bed. At 2 P. M. pulse 160. Tongue dry. Hands and feet cool. Patient quite stupid and unobservant. At 3 P. M. pulse 160. Respiration 20. At 4 P. M. pulse so very weak and rapid that it was impossible to count it. Respiration 18 per minute, interrupted and groaning. From this time onward the respirations became less and less frequent, and she died at 4.45.

The family refused an autopsy.

CASE 38.—*Puerperal eclampsia ; chloroform ; cathartics ; emetic ; venesection.*—Dr. Wm. A. Lockwood, House Surgeon.

Mary Brennan, a native of Ireland, unmarried, aged 24, was taken in labor in Bellevue Hospital May 6th, 7 A. M. This was her first child. The presentation was a vertex, position L. O. A. The first stage of the labor occupied 14 hours 30 minutes; second stage lasted 6 hours 40 minutes; third, 5 minutes. The child was a boy, and weighed 9 pounds 2 ounces. The woman was very much frightened, and appeared quite nervous during the earlier part of her labor, and continued so until she was taken with a convulsion at 11.30 P. M., May 6th. This was during the second stage of the labor. The convulsion lasted for about three minutes, and was characterized by lividity of the countenance, frothing at the mouth, and biting of the tongue. Chloroform was moderately administered during the continuance of the convulsion. The patient vomited at 11.45 P. M. At 12.30 second convulsion. Chloroform again given. A spoon-handle had to be held between the teeth to protect the tongue. At 2 A. M., May 7th, third convulsion, and fourth convulsion at 3.15 A. M. Chloroform each time. The head had been slowly advancing during the past three hours. 4.10 A. M. fifth convulsion, just as the child was born. Chloroform again. The placenta came away five minutes after the birth of the child, and during the insensibility after the fit. Child was in good condition. The woman

slept half an hour after this convulsion. No hemorrhage. 8 A. M., Sunday, May 7th, sixth convulsion. 11.45 A. M., seventh fit, eighth at 1 P. M., ninth at 3 P. M., and tenth at 3.30 P. M. Chloroform was *moderately* given during all of the attacks. Pulse 116. Respiration 15. Drowsiness appearing to deepen into coma. Examinations of the urine showed it to be albuminous. Ol. tigii. gtts. ij. Ice to the head. Mustard on the back, over the kidneys. 5 P. M. eleventh convulsion, and twelfth at 7 P. M. Croton-oil did not act, and gtts. ij were again given with calomel grs. vj. 13th, 8.50 P. M.—Convulsion. 9.15 P. M.—Antimonii. tart. gr. $\frac{1}{2}$ advised by Dr. Taylor. 10 P. M.—Patient vomited, and the skin became quite moist. Bled from median-cephalic vein $\bar{\text{z}}$ xiv. During the bleeding patient had fourteenth convulsion. An injection of soap-suds, castor-oil, and spts. turpentine was given at 11 P. M., but came away unaccompanied by a faecal evacuation. *May 8th*, 2 A. M.—Fifteenth convulsion, and sixteenth at 5 A. M. 7 A. M.—Woman was lying perfectly comatose, and continued so until she died, at 1 P. M., May 8th. *No autopsy.*

CASE 39.—*Puerperal eclampsia; no albumen.*

Mrs. G., a well-built, healthy primipara, aged 25; confined January 8, 1856, under the care of Dr. Bogart, and safely delivered of a female child. The labor was in every respect natural, her health, during gestation, remarkably good, though her legs had been much swollen toward its close. *January 10th.*—Dr. Bogart was summoned on account of a convulsion, which left her perfectly conscious. No milk as yet. Lochia scanty. An eccoprotic mixture ordered, and mustard-draughts to her feet. 9 P. M.—During Dr. Bogart's absence, and by his orders, I was sent for in great haste. On my arrival I found her conscious, with her tongue severely bitten, and learned that she had just recovered from a severe convulsion. Pulse feeble and very compressible. Urine not albuminous; no pain over the kidneys; no swell-

ing of feet or face. Gave her a tablespoonful of a mixture containing equal parts of Hoffman's anodyne, tincture of hyoscyamus, and camphor-water, and waited. Another convulsion of a well-marked epileptiform character soon occurred, when I gave her chloroform, and kept her under its influence for three hours, after which time she slept pleasantly for the rest of the night. In the morning her bowels were well acted upon, and the milk soon after appearing, she progressed uninterruptedly to recovery, and has since done well.

CASE 40.—*Puerperal eclampsia ; chloroform ; forceps.*

Mary Goodwin, a primipara, aged 32 years, a patient in Bellevue Hospital, fell in labor on Wednesday, June 13, 1855, at about noon. She was attended by Dr. Sawyer, one of the house physicians. The pains were efficient, and continued during the night. The membranes ruptured on the 14th, at half-past 8 A. M., and although the expulsive efforts continued, the head did not advance. At mid-day she had a violent epileptiform convulsion, when chloroform was given for about half an hour. Urine now tested, and found albuminous. At 2 P. M. she suffered a second convulsion, lasting a minute and a half by the watch. My colleague, Dr. Taylor, and myself were then summoned, and decided that the woman should be delivered with forceps, which were well applied by Dr. Sawyer, and the woman delivered without much difficulty, full anæsthesia being maintained. The placenta proved adherent, and was detached by myself. The patient then had a refreshing sleep ; convulsions did not recur ; recovery speedy and complete. On the eighth day, however, the urine still showed traces of albumen.

CASE 41.—*Puerperal eclampsia ; forceps ; manual dilatation of cervix.*

On the 18th of May, 1856, near midnight, I was summoned to Mrs. M., living in the suburbs of the city, who

was in labor with her fourth child. I found a woman about thirty-eight years of age, well built, and healthy-looking, though her face was somewhat puffy, and most of her front teeth had been lost. She was utterly unconscious; pupils moderately dilated and sluggish; no shrinking from a lighted candle held closely to the eyelids; pulse moderate in frequency and force; uterus flaccid. A vessel by her side contained a quantity of dark fluid which she had vomited, and her face and clothes were smeared with the same.

Her friends informed me that she had reached the full term of gestation, and had been seized at four in the afternoon with a convulsion, followed by a second, though utterly insensible since the first attack. On vaginal examination I recognized the os high up, largely enough dilated to admit two fingers, and allowing the head to be recognized through the unruptured membranes. Forcible manual dilatation being attempted, I was gratified to find the os yield to the efforts, and well-marked uterine contractions supervening, demonstrated the integrity of that organ. All my endeavors to appreciate the fetal heart were foiled by the jactitation and extreme restlessness of the patient—restlessness contrasting strongly with the marked insensibility to light.

On questioning her relatives I learned that her feet and limbs had been greatly swollen of late, and that she herself had drawn attention, in a laughing way, to the extreme puffiness of her face in the morning. Her physician, who lived several miles off, had been with her after her first convulsion, and had ordered a large dose of calomel and enemata, and, not believing her to be in labor, left, after desiring that he might be informed of her condition in the morning.

Repeating my efforts at manual dilatation, I was gratified to find them successful, and ruptured the membranes. Within two hours from my arrival, the os was sufficiently dilated to admit the forceps. Meanwhile the patient had

been twice most powerfully convulsed, presenting all the well-known phenomena of epileptic, puerperal convulsions in their best-marked form, each being preceded by vomiting of a thick, dark fluid, apparently containing blood. Immediately after the second of these, I placed her in position for the forceps. She was then so quiet from its effects, as not to need chloroform. I had brought with me, from a number of catheters, one of Weiss's gutta-percha catheters, taken at hap-hazard, which snapped in the urethra, and could readily be crumbled into fragments; as it was not possible to procure another, the bladder could not be emptied, and the specimen of urine was lost.

The head presented in the second position of Naegele, and, proving to be small, was withdrawn promptly by throwing the posterior fontanelle in the hollow of the sacrum. It was a male, born living, and did well. The placenta came away readily, after which time the patient remained more quiet than before, and I left her between 4 and 5 A.M., recommending that she should be cupped over the kidneys.

May 20th.—The husband sent for me in great haste in the afternoon, two more convulsions having occurred. I learned that some croton-oil and enemata had been given some few hours after my last visit, and that, during the day of the 19th, she had had two convulsions. Her physician had been prevented from visiting her to-day. She was sleeping heavily; on shaking her, and telling her, in a loud voice, that she was the mother of a fine boy, she manifested some surprise, but almost immediately relapsed into unconsciousness. This was the first time that she had noticed any thing. Unluckily, in my haste, I had brought no catheter. Shortly after this visit, she was freely cupped over the kidneys, and began steadily to improve.

June 4th.—Being in the neighborhood, I called to see her, and found her about the house, intelligent but feeble. She has no recollection of what occurred, and I was prevented from making any inquiries. She complained voluntarily of

pain in the head, which, she said, had lasted for some time previous to her confinement. Her aunt told me that the urine was now voided in sufficient quantity, though it had been scanty. They also told me that she had lost several days in her reckoning of time, and had forgotten the erection of a neighboring shanty, which had been built before the confinement. I urged continued counter-irritation to the lumbar regions and nape of neck.

Some of the material vomited was preserved in a glass bottle and taken to Dr. Clark. This was examined with his accustomed kindness, and found to present the following appearances: Blood-corpuscles, mostly colorless, and dwarfed almost to a point by exosmosis; a few only of natural size. Generally single, but a small number irregularly grouped. Epithelium from the deeper parts of the stomach-tubes, for the most part of a brownish hue, becoming deep green in color when acetic acid was added; also, epithelium from the œsophagus and mouth. A few masses, or aggregations of hematin of a dark color. Besides these, granules, which appeared to be debris, of an uncertain character.

Manual dilatation of the os uteri, in parturient women, has frequently proved of advantage in my practice. Indeed, as we can never estimate its dilatability until we have tested the matter experimentally, I think that so harmless a measure should be more frequently resorted to than is customary. The non-recognition of this principle has, probably, cost many lives.

CASE 42.—*Puerperal eclampsia.*—*Dr. Reuben Cobb, House Physician.*

Margaret Jenkins; unmarried; primipara; æt. 22; fell in labor in Bellevue during the night of July 22d, and was seen by Dr. Cobb at about 4 A. M., July 23d. Head presenting; os dilated to the size of a dollar, thick and undilatable. By noon it had dilated to nearly double its size at the first

examination, but very rigid, and not yielding to the strong pressure of the head. After consultation with me, Dr. Cobb injected about two gallons of warm water steadily within the os. This was done at 2 P. M., and when I saw the patient again at 4 P. M., the os was fully dilated, soft, and thin. At this time the head had nearly completed the movement of descent; the posterior fontanelle was directed to the left acetabulum; foetal heart heard on both sides of the abdomen, with the summum of intensity to the left. No uterine souffle. Membranes ruptured. On moving the head with the finger, some liquor amnii would escape. Vagina cool and moist.

The patient was a strongly-built, well-developed woman, with a feeble pulse. The legs being much swollen, and the face puffy, Dr. Cobb drew off the urine, which proved to be densely albuminous. On questioning the patient, she said that her limbs had been swollen for about a month, and that her urine had been scanty, although now natural in quantity. She complained of a peculiar nervous, tremulous feeling, which had come on the day before, and stated that she had seen bright spots and flashes before her eyes. She now suffered from headache for the first time since her stay in the hospital (a month). Pain complained of when pressure was made over the right kidney. Ordered a strong stimulating injection of salt water with turpentine. Convulsions apprehended. The question now arose whether the woman should be anæsthetized and delivered with forceps, or await the unaided termination of the labor. Unquestionably the symptoms were such as forerun puerperal convulsions in the majority of cases. The tremulousness, the headache, and the flashes of light, might be considered of doubtful value in many women, but this one was perfectly calm, free from apprehension or excitement, and admitted the illegitimacy of her child in the most natural manner. I believed then, and believe now, that immediate delivery gave the patient the fullest advantage of the obstetric art; still I determined to give her two hours more.

By this time, although the pains were good, no advance had been made; the woman was sighing, and appeared weaker; had vomited a greenish-colored fluid several times, and complained more of headache and nervous symptoms.

Dr. I. E. Taylor being sent for, agreed with me in the propriety of terminating the labor, and so soon as anaesthesia had been induced, I delivered her with forceps. The operation required strong tractive efforts. Child born alive, and weighed seven pounds and a half; she has since done well. Placenta gave no difficulty. The patient was cupped over the kidneys on the next day, was kept warm, and bowels freely moved. On the 26th there was no albumen in the urine, and she is doing perfectly well.

CASE 43.—*Albuminuria; intra-uterine hydrocephalus; child born alive; autopsy; Bellevue Hospital.*—Dr. Wm. Lee, House Surgeon.

Isabella Woods, aged 20, primipara, admitted into Bellevue Hospital on the 18th of June, 1864, having just arrived from Ireland after a trip of fourteen days in a steamer. Strong and muscular woman, who had been accustomed to work on a farm. Had been confined to bed during the voyage with headache, vomiting, and constipation, which she ascribed to sea-sickness. States that she never was ill before. Uncertain as to the date of the last menstruation. *June 20th.*—Nitric acid discloses the existence of albumen, although heat alone was not sufficient. Sp. gr. 1024. No casts were found by the microscope. No other symptoms of disease of the kidneys. By direction of Dr. Elliot the patient was not allowed meat, and the bowels were kept free by salines. *June 22d, 5 A. M.*—Labor-pains. First stage, six hours; second, four hours. Presentation vertex. L. O. A.—Uterine contractions vigorous. Fœtal heart on the right side, midway between the umbilicus and the ant. sup. process of ilium. Placenta came away promptly. No hemorrhage. Good contraction.

The child made one or two ineffectual efforts to breathe, and the heart could be felt beating for five minutes after delivery.

Post-mortem by Drs. Young and Farrell, in the presence of Drs. Elliot and Lee. The size of the head led Dr. Elliot to direct that it should be cut off and weighed separately. Whole weight of child 9 lbs. 13 oz. Sex, female. Head alone weighed 2 lbs. 13 ozs. The head measured transversely, from centre of parietal bone over to centre of parietal bone, *after removal of the scalp*, $5\frac{3}{4}$ inches. Under the same circumstances the circumference of the skull measured $15\frac{1}{2}$ inches; the line being drawn from the protuberance of the occipital bone around the head over the frontal eminences. On opening the skull the ventricles were found very greatly distended by a limpid fluid which escaped. The amount was not accurately estimated. Some congestion apparent, and some clotted blood was found spread over the tentorium. This was at first supposed to have escaped from the lateral sinus, but on looking more carefully when the left lobe was lifted, it was seen to have been extravasated on that side, and such was doubtless the case on the right. The kidneys were examined microscopically, and found to be healthy, as were the thoracic and abdominal viscera.

Still without the autopsy one would scarcely have been willing to pronounce the case one of dropsy. The separation of the bones was not greater than is often met with.

CASE 44.—*Bright's disease; convulsions in a multipara in the sixth month of pregnancy; chloroform; Barnes's dilators.*

Dr. C. L. Mitchell sent for me on the 26th of April, 1863, to visit Mrs. —; aged forty; mother of two children; who had suffered from albuminuria and puerperal convulsions in her last confinement, five years before, on which occasion Dr. M. had carried her safely through with chloroform. She

suffered habitually from a very aggravated form of dyspepsia, but no observations had been made of the urine in the interval, nor had there been any symptoms of disturbances of that secretion. During the present pregnancy she was very desponding, nervous, and apprehensive, and refused to make any preparations for the care of the child. For the last three weeks she had suffered from amaurotic symptoms, and for the last two weeks from intense pain, occurring at intervals. The urine had been repeatedly tested for albumen during that time, but none had been found until the 25th. During that night she had suffered intensely from headache, which had been relieved by chloroform and morphia. She was comfortable during the morning of the 25th, but in the afternoon she awakened from a nap in a restless and nervous state, soon culminating in a violent convulsion, during which the tongue was bitten, and which was followed by coma. According to her calculation she is now just at the close of the sixth month of her pregnancy. Dr. M. had kept her moderately under the influence of chloroform, and she was sleeping quietly when we reached the house. The skin was cool and natural; pulse equable and good; no œdema, unless possibly some œdema of the lower lids. Some uterine contractions had occurred at intervals of fifteen minutes. Careful examination through the abdominal walls had enabled us to detect a thigh near the fundus uteri on the right side, and subsequently the head on the left side. No foetal movement could be provoked by manipulation. The foetal heart, which had been distinctly audible before the convulsion, was not now heard by either of us. The vagina was relaxed and moist. The os uteri admitted a finger freely, as it generally does in multiparæ, but was neither dilated nor dilatable. We decided to introduce Barnes's dilators, and the smallest-sized one was introduced at 11 p. m. In fifteen minutes this had slipped in the vagina, when the second size was introduced, which was expelled by uterine contractions at 12 p. m. The membranes were then ruptured, and the ribs and abdomen

were found to be the presenting part. Presently the cord prolapsed so as to quite fill the vagina, and was found to pulsate very feebly. The child was puny. We could not succeed in replacing the funis by manipulation, while the maternal cerebral symptoms made us unwilling to place the mother in Thomas's position. Nor was there sufficient dilatability of the cervix to make us willing to turn the child. Accordingly, without reference to the feeble funis-beats, the largest-sized dilator was introduced, and allowed to remain three-quarters of an hour, by which time the uterine contractions were quite good, and the cervix fully dilated. The right thigh was then sought for and brought down, and a puny child withdrawn. After the placenta had come away, she was allowed to come from under the influence of chloroform, the effects of which had been very happy in restraining tendencies to excitement, which would otherwise have culminated in convulsions. There was some free uterine hemorrhage; promptly checked by ice and ergot.

A specimen of the urine, which had stood for fifteen hours, gave a sediment of albumen estimated at one-fifteenth of its bulk. Numerous small-sized casts and fragments of casts were found, of which the great majority were pale, devoid of epithelium, and sprinkled over with oil-globules. Some were waxy. There were also a few crystals of the urate of soda. At 11 A. M. of the 27th, vomiting commenced, and in nine hours terminated life by exhaustion. There had been no flowing since that which occurred early in the morning. The matter vomited was an abundant green viscid mucus. No response to stimulants. No autopsy.

The dilators in this instance acted with great promptness. It struck me at the time that in cases of prolapse of the funis, where the cord had been returned, they might be invaluable, either in completing dilatation of the cervix, or *in affording a soft cushion to prevent further prolapse.*

CASE 45.—*Albuminuria; induction of labor.*

Dr. J. G. Perry has kindly furnished me with the following history of a case which I saw with him in consultation:

"Mrs. G——; six months pregnant; aged 34; gave birth to first and only child fourteen years ago; since which time she has been almost constantly under treatment for uterine inflammation and retroversion. Her countenance bore marks of great mental suffering, and the skin was so waxy and mottled that I requested she would bring me a small vial of her morning urine, for examination.

"January 8, 1867.—She called, with specimen, but her appearance had so changed that I hardly recognized her; she was universally dropsical. Examination of the urine showed the following facts: Deposition of albumen by heat, so solid that the tube could be turned upside down without loss of substance; specific gravity 1012; no casts; great quantities of epithelial debris. Quantity of urine passed in twenty-four hours, one teacupful; color, dark brown. Was ordered to take the hot-water and vapor bath every other night, with a drachm of the bitartrate of potash at night, and a solution of the bicarbonate of potash and lemon-juice every fourth hour.

"January 10th.—Prof. Alonzo Clark called in consultation, who confirmed diagnosis and approved treatment.

"January 11th.—Dropsical condition much improved; but there is urgent dyspnœa, distressing palpitation of the heart, 120 beats per minute; and complete loss of appetite; restlessness; wakefulness at night; dull headache; and complains of seeing 'crystals of water' floating in the air. Bitartrate and bicarbonate of potash to be continued; also the bath.

"January 23d.—Marked improvement; each dose of the bitartrate has caused free watery evacuations. Urine increased in quantity to one pint in twenty-four hours; color lighter. Albumen one-quarter of the bulk of the urine. Renal debris increased; no casts.

"*January 28th.*—No albumen present; quantity of urine secreted about normal; dyspnœa still urgent; pulse 135. Cannot lie down from oppression in respiration. Skin bronzed and mottled. No sleep for nearly thirty-six hours. Ordered beef-tea and cream.

"*January 30th.*—Albumen returned in urine, but in small quantity. Microscope shows immense quantities of broken-down epithelium; free nuclei; but no casts. Pulse 140. Patient exceedingly weak, and, at times, mutters to herself, as if the mind was wandering. Gets little snatches of sleep, lasting a few minutes, and awakes with a start or frightened jump. Normal quantity of urine secreted—sp. gr. 1005—reaction acid. Fœtal heart-sounds heard; some movement felt. Bitartrate and bicarbonate of potash still employed every other day, which controls the serous effusions; while egg-nogg, beef-tea, and cream are given p. r. n.

"*February 4th.*—Two hours after taking milk, it passed by the bowels almost unchanged. Otherwise about the same. Pulse 130.

"*February 7th.*—218th day of pregnancy. Dr. Elliot called in consultation to decide the propriety of inducing premature labor, and thought the delay should be a matter of days, her condition being so critical, and that the sooner labor was induced, the better the chances of the patient's recovery, and the saving of the child's life.

"*February 8th.*—Patient very feeble and helpless; pulse 125. Amount of urine passed about normal. Sp. gr. 1008; reaction acid. Albumen present. Microscope shows granular and epithelial casts; great quantities of renal epithelium and free nuclei. Slight œdema of hands.

"*February 9th.*—Commenced operations for inducing labor. Bowels previously cleared by potash and castor-oil. Barnes's dilators employed. The cervix being supple and capable of dilatation, I passed my index-finger in and separated the membranes as far as I could. Succeeding in this, I introduced two fingers within the canal, and, separating

them as far as possible, introduced between them the second-sized dilator. From the patient's enfeebled and nervous condition, I was three times obliged to withdraw the instrument to await the subsidence of attacks, which seemed to me premonitory of convulsions. Favoring this condition by thus withdrawing the instrument and allowing rest, these symptoms gradually subsided.

"5 P. M.—Size No. 1 of dilator introduced. 11 P. M.—Cervix fairly dilated; slight pains felt in back and loins. Great relief of the dyspnœa; patient claims that she feels more comfortable than for many days past. 12 M.—Sleeping quietly. Pulse 136. Dilator removed.

"*February 10th.*—Passed a comfortable night. Pulse stronger; 130. Ordered warm-water injection in the bowels, which was followed by a free evacuation of watery and faecal matter. Milk-punch ordered every two hours. 12 M.—Dilator again introduced. 5 P. M.—Pains being feeble, ordered half a drachm fluid ext. ergot. Fœtal heart still heard, but feeble. 7 P. M.—Pains so strong, that the dilator was removed. Membranes pouted readily. 7½.—Ruptured membranes. Only a few ounces of liquor amnii passed. Thus labor commenced, and at 8 P. M., after ten or twelve good forcible pains, the child was delivered, living. Pulse came down almost immediately to 108.

"The improvement of the patient went on steadily but slowly from this time. Occasionally paroxysms of dyspnœa would occur, which would threaten suffocation.

"*August, 1867.*—The patient has steadily continued to improve. The urine is normal in every respect, though some free nuclei are yet observed under the microscope, and her general health greatly improved.

"The child died when three weeks old, from inanition."

CASE 46.—*Albuminuria; eclampsia; death before delivery; subsequent inflation of the placenta.*—Dr. Wyckoff, House Physician.

Eliza Garrey—native of Ireland, primipara, aged 19, robust and well developed, of good habits—states that her menses have not appeared for eight months and a half. On Friday, June 10, 1864, at 6 A.M., while awake and yet in bed, she was seized with three well-marked general convulsions. She frothed at the mouth, and bit her tongue. There was complete unconsciousness, and each convulsion was followed by well-marked coma. There was great capillary congestion of the face, but the extremities were cold. Cold affusions to head and chest, mustard to legs, strong purgative enema. Teeth separated by plug. She came gradually out from the comatose condition, and for a short time was able to converse quite rationally. At 11½ A.M. the convulsions returned, and within half an hour she had six seizures, each lasting from ten seconds to a minute. These finally yielded to chloroform, and did not reappear. The urine was drawn with a catheter, and found to be high-colored, of low specific gravity, and moderately albuminous. As the enemata and the two ounces of castor-oil, which had been given, had not produced much effect, two drops of croton-oil were given with a prompt and satisfactory effect. She lay in a semi-comatose condition, and occasionally replying to questions and expressing her wants. Respiration noisy.

At 2 P.M. I dictated the following memoranda: "Abdominal palpitation recognizes that the uterus reaches two finger's breadth above the navel. The uterus is hard to the feel. Slight uterine contractions occasionally. Foetal heart not audible, but the moans and movements of the patient forbid a thorough examination. Per vaginam the cervix is found to be absolutely undilated and undilatable, conical and nipple-shaped, not admitting even the tip of the little finger. The head can be distinctly felt through the

anterior vaginal wall. It is probable that all the waters have escaped. Lips bluish; face slightly puffed. Patient can be so roused as to look at you, but not so as to understand any thing said. Pulse 110 to 120, good and full. Heart-sounds natural." 3½ P. M.—Pains recur every twenty minutes, and last from one to five minutes. Calls for drink. Nervous symptoms not so strongly marked. Has taken nourishment. Chloroform has been administered twice for imminent convulsions, as it had been during the morning; but the nervous disturbances are not as well marked. Warmth of the body has returned in a measure. 5½ P. M.—Up to this time we were sanguine of success, and the delivery was not hastened, in the hope that the improvement would continue. But now the jactitation increased; pains not noticed; pulse 112, and weaker; respiration stertorous. Unconscious. Swallowing difficult. Extremities cold. Spumous fluid from mouth and nose, and death at 8 P. M.

Autopsy.—I regret to have lost the memoranda of the autopsy, which took place twenty-two hours after death. The fœtus was found in utero, in the most frequent position and the customary attitude. There remained four ounces and a half of amniotic fluid in utero by measurement. I proceeded in the dead-house to display the observations of Dalton by introducing a blow-pipe into one of the divided vessels of the uterine sinuses, and then inflating first the venous sinuses of the uterus, next the deeper portions of the placenta, and then the superficial portions. But although I did my best, the trial failed for the first time in my experience; a fact which was rendered annoying by my previous prophecy of success. In the evening, however, on examining the uterus with Prof. A. Flint, Jr., and Prof. White of Buffalo, we found that the air had penetrated by this time immediately underneath the transparent chorion, and we each succeeded in readily inflating the whole placenta by Dalton's method, and proved the fact by cutting the chorion under water and blowing a stream of bubbles through the incision.

CASE 47.—*Albuminuria; eclampsia; death from apoplectic clot, with atheromatous degeneration of vessels.*—*Dr. Herman Smith, House Physician.*

Anne Miller, admitted to Bellevue, September 18, 1866, at the close of her second pregnancy. Feet œdematous. Urine albuminous. No symptoms of uræmia. Sept. 26th, labor commenced, and at 8 P. M. a living male child was born. Every thing went well until September 27th, when convulsions occurred. She remained comatose after the first convulsion; pupils contracted; respiration gasping; face cyanotic, and died at 2 A. M. of the 28th.

The autopsy showed a well-contracted and healthy uterus; no peritonitis. Liver healthy. Weight 4 lbs. and 14 ozs. Lungs healthy; some pleural adhesions on the right side. Heart normal. Kidneys weighed $4\frac{1}{2}$ ounces, and were healthy under the microscope. Both lateral ventricles of the brain were filled with bloody serum; the third ventricle contained serum, and a small clot; and the fourth was filled with clotted blood. The vessels of the neighborhood were examined by Prof. A. Flint, Jr., and found to be the subject of well-marked atheromatous degeneration.

CASE 48.—*Albuminuria; puerperal eclampsia.*

Dr. J. A. Brady, of Williamsburgh, invited me to visit a primipara, well built, of healthy antecedents, and within a fortnight of her confinement. The doctor had examined the urine at intervals, and had found it healthy to within a few days before (March 15, 1867), when it became nearly solid in ebullition, and displayed very numerous waxy and hyaline casts, and free renal cells under the microscope. Passed about two pints in the twenty-four hours. The patient's expression is good; head and legs are very œdematous. Acknowledges no special trouble except from dyspnoea, which prevents her from sleeping except in a recumbent posture, and occa-

sions great insomnia. She was treated by saline cathartics with wine of colchicum until free catharsis had been induced and she had twice vomited. Hot-air bath for an hour each day. She had well-marked convulsions, but labor was safely brought on with the douche by Dr. B., and (September 29th) she has done perfectly well.

CASE 49.—*Albuminuria; induction of labor; mania; recovery; subsequent history of the life.*

On the 2d of July, 1864, Dr. C. L. Mitchell, of Brooklyn, sent for me to see Mrs. —, a primipara of twenty, whose last period terminated on November 20, 1863. Dr. M. informs me that she has complained of an unbearable pain in the epigastrium, excessive restlessness, unnatural irritability, sleeplessness, and great debility. The patient's exhaustion and suffering were such, that unless relieved, in his opinion, death would soon result.

She is well built, but very pale and anxious-looking, and before her marriage she was under Dr. M.'s care for a long time for anæmia, with a loud systolic basic murmur, which has now disappeared; and the heart-sounds are normal. There is no œdema nor puffiness of lower eyelids, or of any part of the body. The urine nearly solidifies under heat and nitric acid, but the specific gravity is high, 1032; granular casts. There are no head symptoms, disturbances of vision or hearing. She complains of pain over the epigastrium, and has been vomiting a sour green fluid. The outline of the uterus is not perfectly defined, and we suspect that there is some fluid in the abdomen, but the fundus reaches two fingers' breadth above the umbilicus. Neither foetal heart nor foetal motion recognizable.

We agreed that the child was dead, and that Dr. M. should induce the labor. The result is presented in Dr. Mitchell's own words, as compiled from his notes and letters of various dates.

"DEAR DOCTOR: After you left, July 2d, I used the warm douche to the os and cervix uteri for nearly an hour without effect. The patient was exceedingly restless, and complained so bitterly of the restraint, that it was necessary to desist.

"While waiting for the messenger to return with your dilators, I introduced Simpson's sound about three inches, and passed it around the fetal head between the uterine walls and the membranes, with a view to excite contraction. But this seemed as ineffectual as the warm water.

"After a good deal of delay in procuring sponge-tents, one of large size was introduced at 11 p. m. During all this period chloroform was used, more or less, as called for by suffering and restlessness. She passed a comparatively comfortable night, the pain in the epigastrium, which had caused more distress than any other symptom, having ceased from the time the tent was introduced. That the presence of the tent was the cause of the cessation of the gastralgia was proved by the fact, that previously to its use, whenever my finger was resting against the os uteri in making an examination, using the douche, or introducing the sound, the pain in the stomach was for the time being absent, but recurred when the pressure on the os was removed. I think this an important fact, as pointing to the cause of the pain in the epigastrium. A drachm of fluid extract of valerian was administered, with such effect as to render a resort to the chloroform less frequent than before. She slept better than at any time since Tuesday (June 28th), but in no instance longer than ten minutes.

"The urine was rendered completely solid by the addition of nitric acid, only a drop or two of fluid appearing when the test-tube was placed horizontally.

"*July 3d.*—Face leaden and almost expressionless. Eyelids and cheeks swollen; jactitation, as in exhaustion from great loss of blood; constantly desiring to be raised and lifted to an easy-chair, and then to be again carried to the bed,

where it was necessary that the nurse should remain to keep the patient from throwing herself out. She was perfectly unreasoning and unreasonable, but recognized readily all who were present. The os uteri was now so sensitive, that she cried out with pain whenever it was touched. The breath was offensive, the tongue covered with a dark fur; the pulse 156 per minute, small, and feeble, and the whole appearance was as if the patient would succumb before delivery could be effected. On removing the tent, the os was found dilated to the size of a twenty-five-cent piece, and the uterine tissues soft and dilatable. The wax on the sponge had not melted, consequently the opening of the womb had been accomplished by the vital forces stimulated by the presence of a foreign body, and not by mechanical distension from the expansion of the sponge. Under the use of the dilators the os was in a few hours developed to the size of a dollar, and within an hour afterward the child was expelled. It was dead, well formed, and of full size for seven months. In the evening the pulse had come down from 156 to 136 per minute, but remained feeble as before. The stimulants and nourishment, consisting of brandy, wine, eggs, etc., which had been hitherto used, were still continued. The patient slept half an hour without chloroform, but the excessive restlessness required its occasional use.

“July 4th.—Has had a comfortable night, the best for a week. Pulse, 130. Is more sensible than yesterday, but there is no recollection of what has passed. Urine, drawn by the catheter, was in large quantity, clear; sp. gr. 1018; and, after heat and nitric acid, showing about one-third of its bulk of albumen. The face, in the evening, has still a sodden, leaden look, and the urine shows a smaller proportion of albumen.

“July 5th.—The expression of the face almost cheerful, and my entrance was recognized with a smile. The face and eyelids are less swollen, and the eyes for the first time have a natural expression. She is entirely unconscious of

what has passed since Saturday (2d inst.). Pulse, 120. Bowels moved five or six times during the night, and the bladder being evacuated at the same time, made it impossible to procure any urine for examination. The brandy was discontinued, and beef-tea and chicken-tea substituted for the wine and egg.

"July 6th.—Eyes natural; countenance smiling and pleasant; pulse, 108; tongue covered with a white fur; breath no longer disagreeable; skin natural, and food is relished; the bowels have moved twice, the evacuations still dark and thin. A small quantity of urine was obtained, which showed only a trace of albumen.

"July 8th.—Whole appearance natural. Pulse, 108. Some turbid urine of a sickening odor was obtained, of a sp. gr. 1006, which, on the addition of nitric acid, exhibited an opaque opal whiteness, and on boiling gave a flocculent deposit of albumen one-fourth of the bulk of the urine, the supernatant fluid being of a reddish purple. I was nauseated by the smell of the urine, and did not examine it further. The absence of my microscope prevented any investigation of the deposits. Was called in the afternoon because of the appearance of new symptoms. She says that she sees a great many beautiful sights of fairies in processions, and weddings, and is astonished that others do not see them. She 'had a talk with a ghost, so tall that she could not see his head, and the nurse never knew any thing about it!' Pulse 120, somewhat firm; tongue not furred, but disposed to be dry. Nurse says, she passes a great deal of water. This of to-night has a sp. gr. of 1005, a very small amount of albumen, and none of the offensive odor observed in that of the morning. All kinds of animal food were prohibited, and farinaceous gruels only directed.

"July 9th.—The patient is animated and cheerful; has had no more fancies; bowels not moved since last evening. The amount of urine passed in twelve hours is a little less than a pint; about one-fifth of its bulk is albumen, the odor

a little sickening, the purple color no longer present; the sp. gr. 1005.

“July 10th.—Has been taking one-sixteenth of a grain of the bichloride of mercury three times a day. Since last visit has been extremely restless, complaining of very severe pain in the head with a sense of heaviness. The restlessness was quieted in the evening by valerian, after which she slept well all night, and without strange fancies. Has passed, as the nurse estimated, three quarts of offensive urine during the last twenty-four hours. The bowels were moved last night and this morning—the evacuations being a little more consistent and somewhat frothy. The face is again swollen and dull, but the eyes appear normal. Tongue redder and more dry; pulse, 120. In accordance with the usual subsidence of the symptoms at this period of the day, her head feels much better. Chicken-tea was directed for food, and the dose of bichloride diminished to one-twenty-fourth of a grain.

“This improved condition continued through the day—the headache and restlessness did not return; food was taken with a relish; the bowels were moved in the evening, with evacuations of improved character.

“July 11th.—Face somewhat less swollen, but expression better than yesterday. Tongue paler and less dry, slight sensation of heaviness and pain in the head, which she attributes to the noise of heavy carts passing early. Thirst less; pulse 124. Feels well, and wishes to sit up. The nurse estimates two quarts of offensive urine for the twenty-four hours. Has not passed water since last evening, and that now drawn by the catheter has, for the first time, a urinous odor. For the first time, too, the reaction is decidedly acid; quantity of albumen less than day before yesterday; sp. gr. 1008. The increase in the specific gravity, I think, is due to the diminished quantity of water, and not to an improved state of the kidney. Convalescence was from this time fully established, and notwithstanding that, in all other respects,

her health was perfect, the specific gravity of the urine did not go higher than 1012.

“*Subsequent History.*—In a little more than a year subsequently she again became pregnant, and in January, 1866, at about the third month, uræmic symptoms became a source of great distress and suffering, chiefly from nausea, headache, and prostration. It was partially relieved by steaming, etc., but the occurrence of abortion put an end to her troubles, and soon she was again about the house, riding out, and in all respects doing well.

“Three months later, in the following April, she took cold by getting her feet wet, which brought a return of the same symptoms. The urine, treated with heat and nitric acid, showed the albuminous portion to be about four-fifths of the bulk of the urine passed. *Diuretics were administered, and arrested the secretion of urine at once.* ‘Steaming’ restored the function, and in four days reduced the albuminous portion of the tested urine to one-twentieth of its bulk. The urine examined one month later showed one-fortieth of its bulk of albumen, but the specific gravity was only 1004.

“Examinations made from time to time afterward through the following year sometimes showed albumen and casts; at others, not; but the specific gravity at no time exceeded 1012. Her spirits and general health seemed perfect.

“During my absence from town in the summer of 1867, she was attended by Dr. Hallett, who has furnished me with the following memorandum of her last and fatal illness, which took place just four years subsequent to her first attack:

“BROOKLYN, *September 30, 1867.*

“DEAR DOCTOR: I was called in haste to see Mrs. — at 9 A. M. of the 20th July, 1867, and found her dressed, and lying in a semi-comatose condition. She had dressed herself as usual that morning, and, while giving directions for breakfast, complained of her head, and had lain down in the condition in which I found her. She vomited soon afterward.

Skin dry and hot. Pulse 96. Respiration normal. When shaken and spoken to loudly, she would look up like one under the influence of liquor, and would immediately relapse into her former condition. I ordered a stimulating enema, and the application of the vapor-bath, as had been used on former occasions. At 12 M. she was in much the same condition as at my morning visit. Injection had come away, but nothing more. Skin dry and hard. Vomited again. I ordered one-quarter grain of elaterium to be given every three hours, and the vapor-bath to be repeated. 9 P. M.—Her condition much the same. No moisture upon the skin, neither could any be produced by the vapor-bath. Vomiting continues occasionally. No movement of the bowels. At my second visit, no water having been passed, I introduced a catheter, and drew off about a quart of urine, specific gravity 1010, which coagulated by heat and nitric acid to about one-sixth of the quantity.

“During this night Prof. A. Flint was called in consultation—about 2 A. M. Her condition was not materially changed. As her bowels had been but slightly moved since my last visit, one grain of elaterium was ordered, and also another trial of the vapor-bath.

“21st, 9 A. M.—Had vomited the medicine during the night. Pulse 108. Skin dry. Coma still the same. No movement of bowels, nor had urine passed since introduction of the catheter. 12 M.—Condition still the same. She was rather more feeble. I again introduced the catheter, but did not obtain more than two ounces. Probably had passed her water in the bed, as there was a strong, disagreeable odor there.

“She continued in this condition, gradually growing more feeble, and vomiting occasionally, until her death, which took place at about half-past 2 on the morning of the 23d, without convulsion. From the commencement of the attack she was unable to speak. It appears that her health had been as good as usual until the Friday previous, when she

complained of vertigo, which soon passed off. The next day she got her feet quite wet, and passed the evening at the theatre."

CASE 50.—*Albuminuria; eclampsia; induction of labor.*

Dr. C. L. Mitchell, of Brooklyn, called me to the following interesting case in his practice, and has kindly furnished the history :

"On the 21st of October, 1862, was called to Mrs. —, then in the last month of her second pregnancy. She had intense headache, dimness of vision, œdematous limbs, debility, sleeplessness, and great restlessness. For a month previously she had been suffering more or less from similar symptoms, for which cathartics and a light vegetable diet had been prescribed. During the last three days these had so increased in severity that at this time there was imminent danger of convulsions, and as no relief was gained but by the continued administration of chloroform, I was satisfied that the patient's chance for life would be greater if premature labor were induced. Dr. Elliot was sent for in consultation, and at his suggestion leeches were applied to the temples, and a stream of warm water directed against the os uteri. After the leeches were applied, and before the douche was used, the patient had two convulsions. Chloroform was again resorted to, and continued subsequently as the symptoms would indicate. When the patient was put in position for operating, about one ounce of urine was drawn off, and found to contain a large proportion of albumen. During the administration of the douche the patient seemed more relieved, and to feel better than she had done for several days. Her consciousness was perfect and her vision improved. The operation was continued about twenty minutes, during which time the cervix became short and patulous, and the os dilated from the size of a dime to that of a half-dollar. The relief was so complete that chloroform was discontinued, and

the patient slept naturally. A third convulsion supervened in half an hour after, and the inhalation immediately recommenced. At 11 P. M. the warm douche was repeated. Labor-pains, previously occasional, became now frequent and severe. Os dilated rapidly, and child was born living at 11.20 P. M. A fourth convulsion occurred at 11.50, the chloroform having been suspended during the necessary attention to the mother and child. Breathing stertorous; respiration 36. Pulse imperceptible at the wrist. Extremities icy cold in spite of warm applications. The amount of blood lost was but moderate. Half an hour later (12.40 A. M. of 23d), patient comatose; sweating; respiration 40; pulse perceptible, 152 in a minute; feet and hands cold; head hot; face flushed. Patient gradually became more quiet under the free use of stimulants. Slept almost constantly, and when awake the consciousness seemed perfect. The urine, drawn with a catheter at 10 A. M., was more clear than that passed previously.

“*Examination by Dr. Austin Flint, Jr.*—Acid, specific gravity 1022; contained an abundance of albumen, and showed, under the microscope, a large number of waxy casts, many of them with oil-globules attached. They were about one-thousandth inch in diameter. No epithelial casts, or casts made fatty by debris of epithelium. All the granules in the casts were fatty.

“During the afternoon respiration came down to 32; pulse to 120, and quite distinct. A free alvine evacuation, of natural appearance. 7 P. M.—Drinks freely. Respiration 28; pulse 108. Injurious consequences were feared from the large quantity of chloroform used during the last six hours, and it was gradually discontinued. Patient became very restless. Complains much of abdominal pains, chiefly in the epigastrium. Sleeps a few minutes at a time, and is very violent and abusive when awake. At 2 A. M. (24th) vomited an enormous amount of fluid, after which she was much more quiet. Indian hemp administered without relief. Occasional

small draughts of cold water only allowed. Six to ten hours later she made loud and frequent outcries from pain at the pit of the stomach, for which an opium poultice was applied, and subsequently belladonna, but without effect. Urine contains from 60 to 75 per cent. less albumen than previous to labor. Patient perfectly conscious, but remembers nothing that had occurred for several days. The patient died from exhaustion on the 29th.

“October, 1867.—The child is still living.”

CASE 51.—*Albuminuria; eclampsia; douche; dilators; craniotomy.*

MRS. —, aged 20, had been married 240 days, and within a fortnight after her last menstrual period. She became pregnant immediately, and enjoyed better health than she had previously done until just before her fatal illness. The family had noticed that her face was swollen, and that she appeared stouter. The hands and feet were not swollen, but there was slight oedema over the tibia. Lately she had been suffering from flatulent dyspepsia, with pain in the epigastrium and nausea, and on the evening of the 3d of October, 1867, these symptoms distressed her so that she went to bed, was soon in convulsions, and Dr. Bogart was hastily called, who sent for her physician, Dr. Buckley, and both continued in attendance. The bowels were freely moved by injections, and the fluid extract of senna; chloroform was given, and I was added to the consultation at 1 A. M. of the 4th.

The convulsions had been frequent; there was no consciousness in the intervals except after the first; the breathing was remarkably rapid; the tongue bitten; there was great restlessness. A small quantity of urine drawn from the bladder was high-colored, and deposited about one-third of its bulk of albumen on ebullition.

The cervix was long, not in the least dilated or dilatable; the head presented; foetal heart inaudible, the loud maternal

respiration making auscultation very difficult. Labor-pains were commencing. The abstraction of blood had been considered and declined on account of the pulse, and the great danger of the case fully appreciated. Delivery seemed to all a matter of equal necessity and difficulty. Within five hours we had given three large warm uterine douches, had faithfully tried manual dilatation and Barnes's dilators, and had ruptured the membranes. By seven in the morning two fingers could be introduced within the long, thick, and rigid cervix, which felt as though made of "ligament." The os was well down, the head felt, and the fact recognized that the dilators would not work well. They could only be introduced along the posterior cervical wall, and were expelled as soon as distended. A catheter had been left in utero for a couple of hours. The pains were now feeble. The convulsions, kept partly in abeyance at times with chloroform, recurred so frequently and so forcibly, that they, and the remarkably rapid pumping respiration, were exhausting the patient. The pulse, which had ranged from 150 to 160, and had been losing force, became so weak that we counted it with difficulty, and it seemed at one time lost. She appeared moribund, and the lower extremities became somewhat dusky.

Delivery was impossible except by perforation, or such extensive division of the long, thick, and rigid cervix, as could not receive our approval. We were confident that the child was dead, and it seemed that the mother must die undelivered. After an hour or so the pulse managed to maintain its feeble beat, so as to show that she might yet live, at least, some time longer; and it was decided to attempt delivery by craniotomy, though only after the approval of the family in the event of failure to deliver, or death during the operation.

With Blot's perforator, and Simpson's cranioclast, I completed the task, which, considering the condition of the woman, the extraordinary rigidity and narrowness of the cervix, and the annoyances threatened by spiculæ of the

premature foetal skull, was more painful and difficult than any in my experience. The placenta came away, and the uterus contracted well. The woman's strength did not abate; there was still the small, thready pulse, that there was at the outset. The convulsions had continued; but, at least, we had that hope which attends the fact that delivery had been accomplished. We repeated the injection of beef-tea and brandy. She continued to sink, and died at 12 M. No convulsion occurred after delivery.

In this case I washed out the brain with the douche before making tractions.

CHAPTER IV.

RELATIONS OF EPILEPSY TO THE PUERPERAL STATE.—PUERPERAL MANIA.

Case: Epilepsy; puerperal mania; subsequent death of child in epileptiform convulsions.—Patients with epilepsy not specially liable to attacks during labor.—*Case:* Epilepsy; venesection; confinement.—Albuminuria in epilepsy.—Puerperal mania.—Danger to the child from its mother.—Prognosis; hereditary predisposition.—Asylums.—Nutrition.—Necessity for tact and presence of mind in the management of these cases.—Urine and fæces.—Summary of treatment.—*Case:* Puerperal mania.—*Case:* Puerperal mania.—*Case:* Puerperal mania.—*Case:* Puerperal mania.

CASE 52.—*Epilepsy; puerperal mania; death of child, subsequently in epileptiform convulsions.*—Dr. D. McLean Forman, House Surgeon.

Margaret Milway, æt. 22, U. S. Admitted to Bellevue 5th of January, 1867, in the 8th month of her first pregnancy. She gave the history of "epilepsy" for the last seven years. Menstruated when fourteen years old, about a year before the first attack. Since then she has had about one convulsion a month, which always occurred a week before or a week after her period. These periods have always been regular in every respect until her pregnancy. During the last three months of her pregnancy these convulsions, which had not ceased, have become more frequent—about four during the month. During the twenty-four hours before her confinement she had four convulsions. The labor, however, was entirely natural, commenced and ended on the 1st of March. Twenty-four hours after the birth of the child she presented

symptoms of mania, talking irrationally and obscurely, and manifesting such an extreme dislike for the child, that it became necessary to take it away from her presence. This mania, which was not of a very violent character, lasted for a week and then subsided, leaving her so rational that the child was restored to her, since when her intelligence remained unclouded, and she has cared for and nursed the infant.

Careful and repeated examinations of her urine have been made since her admission, but neither albumen nor casts could be found. The treatment has consisted in the bromide of potassium (gr. xx ter in die) and tonics.

April 3d.—One month after delivery. Patient has had three convulsions since her confinement, at intervals of a week or ten days; but mother and child are doing well.

April 8th.—The child, a boy (which weighed $7\frac{1}{2}$ lbs. at birth), was seized to-day with several ill-defined convulsions during the afternoon, and early in the evening presented a well-marked epileptiform convulsion, which lasted for five minutes.

April 9th.—Refuses the breast, lies in a semi-comatose condition, but cries when irritated. *10th.*—Several well-marked convulsions during the twenty-four hours. *11th.*—More convulsions. *12th.*—Four in rapid succession, dying in the last. The child appeared well nourished, and healthy in every respect.

The autopsy, carefully made, revealed no evidences of disease.

The Epileptic is not specially liable to Puerperal Eclampsia.—Among the most interesting points connected with this case is the fact, that this confirmed epileptic had no convulsive seizure in her labor. My attention was drawn to this fact in 1853, in the Lying-in Asylum, in the following case. On consulting authorities before that confinement, I was gratified to find that epileptic seizures were infrequent in these patients during labor; and so it proved then, and

now, in the case of Margaret Milway; and so has it proved in my experience.

CASE 53.—*Epilepsy; venesection; confinement.*

Alicia —; second confinement, June 21, 1852; vertex; first position; 18 hours' labor; female child; healthy; length, 19 inches; weight, $7\frac{3}{4}$ lbs.; placenta, 1 lb. 4 ounces; diameter, 7 inches; cord, 25 inches in length.

Alicia has suffered from epilepsy since she was thirteen years old, and yet she has had no trouble from any form of eclampsia during her two confinements, and during pregnancy the attacks occur at longer intervals. She was bled some time before her first confinement, with good effect, and on June 5th I took ten ounces of blood from her arm for a headache, which would not yield to saline cathartics. (Her sister suffered from epileptic attacks up to the establishment of the catamenial discharge.) No albumen in the urine.

Albuminuria in Epilepsy.—A second point of interest is the fact that careful examinations of the urine failed to recognize any of those conditions which we have seen associated—as the law—with puerperal eclampsia. Now, there is no difference whatever in the phenomena presented in the well-marked attack of epilepsy and those of true puerperal eclampsia. It is most probable, however, that examinations of the urine of epileptics on a large scale, will show that albuminuria does not bear any such striking relations to the convulsive seizures as is observed in the eclampsia of the puerperal state. We have therefore, undoubtedly, the right to attribute them to different influences, and to feel that we are closely on the track of the causation of the puerperal eclampsia, though that of most cases of epilepsy be yet shrouded in mystery.

Puerperal Mania.—A third clinical fact of interest is the development of puerperal mania in the progress of the

case—mania unassociated with any uræmic blood-poisoning, and classical in its character. The hatred of this mother for her first-born baby is a phenomenon seemingly irreconcilable with the idea of sanity; and not infrequent in cases of puerperal mania.

We have, however, reason to believe that women in hospitals sometimes “overlay” their children intentionally, and one case has been shown this month where we suspect that such a contingency happened, and the child displayed large cerebral extravasations on the autopsy. Nor can we witness the indifference to the fate of their children displayed by some women, anxious for the place of a wet-nurse, without recognizing the fact that there is a difference in the maternal love of some sane women.

I am cognizant of the facts of a case where a young mother, with puerperal mania, seized her child suddenly by the heels and threw it out of the window. Whenever puerperal mania is suspected, however slight the symptoms may be, the child should be carefully watched over, lest its own mother should do it harm.

The prognosis of puerperal mania, according to my experience, is very favorable (but no fixed time should be set for recovery); though it may be modified by evidences of grave renal or cerebral disease, or other preponderating influences, and especially by hereditary predisposition. This latter history is extremely difficult to obtain in private practice, and impossible in Bellevue. Refined and Christian people may suppress the truth in these cases, even if they do not directly mislead the inquirer. I have had occasion to be surprised in more than one instance, when informed that aunts, grandparents, mothers, or sisters had been unequivocally insane, though the family, grieving over the young mother with puerperal mania, seem to be utterly ignorant of facts well known to them and to others. As a rule, cancer, tubercle, scrofula, and mania are not remembered in the family circle.

Still, when we can eliminate the unfavorable influences

alluded to, the prognosis is favorable, though the duration is always uncertain, and the treatment demands a great deal of tact. If the result be favorable, the practice is always lauded; but if there be delay and disappointment, and the reason continue clouded, whatever course may have been decided upon is apt to be regarded with disapproval, and regret felt or expressed that an opposite plan had not been followed. Thus, if the patient be promptly withdrawn from home, and placed in an institution for the care of the insane, without satisfactory and prompt result, the friends may upbraid themselves and their advisers for the separation. On the other hand, if they retain the patient at home, and improvement be delayed, they regret that they had not consented to send her to the asylum where Mrs. So-and-so recovered so rapidly. It is best always to follow the promptings of Nature, and not to send these patients to asylums if they can be well cared for at home, until it is obvious that a change may be desirable. It is a disagreeable fact in the history of a life that confinement in an insane asylum has been necessary. Friends at home, with the best feelings, are often so injudicious as to make patients worse. They watch over them with such anxiety, such suspicion, and half-concealed apprehension, or even fright, as to excite and annoy the patient. The patient, moreover, is apt to feel constraint more acutely in places where she is wont to be obeyed. All these facts must be weighed, and it must be remembered that a powerful mental diversion is awakened by removal to an asylum. There are few of us so badly off that we can be as happy away from friends and home as with them, however we may think before the trial is made; and the development of home-sickness in these patients is a healthy feeling, and a stimulus to self-control.

Change of scene may be beneficial in other ways for many, and travel from place to place may change the current of thought, or awaken the patient from apathy. The inconveniences are, however, similar to those which may oc-

cur to the patient retained in the family circle. An additional argument for sending these patients far away from their place of residence may be found in the concealment of their misfortune, and the fact that their subsequent return to home removes them from the scenes of their mania. It is certain, however, that an American cannot find abroad asylums equal to those at home, or men better fitted, if as well, to treat the insane, than those in charge of these institutions here.

In puerperal mania the pulse is generally rapid, and may be very markedly so. In its progress, unwillingness to take food may be developed at any time, as in other cases of acute mania, and may seriously complicate the case. The exhaustion consequent on pregnancy and confinement, on the changes of the puerperal state, on the commencement of lactation, joined to the excitability and perpetual chatter, or frenzied declamation, so often witnessed, demands that food should be administered to support the patient's strength. This may be a very difficult task with the patient who believes that those she loves best are in a conspiracy with those she does not know at all to poison her, whenever the opportunity can be found. It may be a difficult task in the sullen, melancholic patient who says nothing, but will neither open her mouth, nor swallow, if she can help it. The indication must, however, be kept in mind, and met with tact and gentle firmness.

I have often been struck, in asylums, with the admirable manner in which the physicians and attendants quiet patients shrieking at the top of their voices, and advancing in a frenzied way upon the visitor. Without using positive force, or seeming to directly oppose the patient's movement, they indirectly interfere with his advance, and divert his attention: The model for all experts is to be found in the old story of the man who had ascended to the top of the column at the Place Vendôme, and found himself sharing the delight of the view with a powerful maniac. Being grasped by this charm-

ing companion, and ordered to jump with him instantly to the ground, the unfortunate visitor managed to laugh at the proposition, and to suggest that any crazy man could do that; but that *he* was in favor of descending to the bottom by the staircase first, and then of jumping up! The insane man joyfully accepted the suggestion, with a result which can be imagined.

In Bellevue we receive a great many cases of puerperal mania, on account of the fact that so large a proportion of our pregnant women are unmarried primiparæ, and because others of the poorest classes, who cannot be controlled at home, are sent to the hospital. But we do not keep them there if the mania lasts very long, as they are then transferred to the Lunatic Asylum on Blackwell's Island, or removed by their friends. We have not the room or conveniences necessary for those who remain insane after they have passed the immediate risks of the puerperal state. From all these facts, and from the necessity for keeping these patients in the recumbent position for some time after their confinement, we may be obliged to use the strait-waistcoat, or other methods of restraint, more often than is desirable on general principles.

The condition of the urine and of the bowels must always be examined into in these cases. My own statistics do not show so frequent a proportion of albuminuria as others, but the coincidence is frequent, and must be treated on general principles. If the amount of urine and urea be sufficient, and the specific gravity good, the albuminuria offers clear indications for treatment and hope. It is to be desired that cholesteræmia shall be studied in these cases as in cases of eclampsia. Constipation must always be appropriately treated; and I once saw a case similar to that described by Gooch, where a free and large movement of black and offensive matter from the bowels preceded the immediate restoration to sanity. In all hysterical, excitable women, with anomalous nervous symptoms, these very dark dejec-

tions afford me an indication for treatment, and the result is often favorable. It is a pity that the fæces are not more generally made the subject of chemical and microscopic study. The subject is somewhat revolting, but undoubtedly the benefit to humanity will be immense, and the time must come when deodorized fæces will be regularly studied for clinical indications.

The treatment of puerperal mania is chiefly expectant, and the physician's principal duty is to restore the tone and functions of the different organs of the body; to meet special indications; to promote calm and refreshing sleep; to sustain the strength; to soothe, control, and direct the shattered senses by such influences as the patient's position and surroundings will permit; to watch for intercurrent and latent diseases, especially for meningitis; and carefully to guard against liability to relapses. Although, as a rule, recurrence of these attacks in successive pregnancies need not be specially apprehended, it is well that the patient shall not become pregnant too soon; and where there is hereditary tendency to mania, it is better that she shall not become pregnant again.

The ophthalmoscope will probably be found of service in these and other cases of delirium and mania.

CASE 54.—*Puerperal mania.*—*Dr. J. R. Buist, House Physician.*

Mary Young; German; unmarried, aged 24; primipara; entered Bellevue Hospital September 9, 1857. Nothing worthy of note in her mental or bodily state until her confinement on the 9th of October, when she had a natural and speedy labor. 14th.—Visited by the child's father, with whom she had a violent quarrel, greatly exciting her, and in which she used the most violent and profane language, and could only be quieted by persuasion and threats. During the two following days she remained anxious and agitated,

and talked much to any and every one. Expression staring and unnaturally animated; at one moment sorrowful, and then displaying silly levity; voice unnaturally shrill. Complained of extreme abdominal tenderness and great dysuria, craving relief, though the bladder was empty. Respiration hurried, pulse 130, and weak. Bowels confined. *Ol. ric. et haust. anod.* 20*th*.—Has uniformly declared herself well, but would stop all passers-by with accounts of herself and her troubles. To-day she has been disorderly, and has accused the nurse of poisoning her. When approached by Dr. Buist she became greatly excited, sprang up in bed, talking volubly, with much gesticulation, and accusing him of endeavoring to destroy her with $\frac{3}{4}$ ij. of morphia. Spoke of her infant with much affection. At 9 p. m. stole up to the rooms of the house staff and shouted the most abusive epithets, so as to alarm the patients in neighboring wards, and had to be forcibly carried to the cells, when it was thought best to separate the child from her, as she had been seen stuffing it between the bed and the wall. 22*d*.—Visited by Dr. Clark and myself. She was now calm, collected, talked rationally about herself, though she spoke continuously and hurriedly as her strength would permit, with occasionally a silly expression. Some urine drawn with the catheter gave no evidence of albumen. Bowels constipated. Five grains of calomel, followed by oil, produced several copious stools, dark-colored and very offensive. After this large doses of hyoscyamus and Hoffman's anodyne failed to procure sleep. 23*d*.—Became violently delirious during the night. Broke every glass in the window; tore up all her bed-clothing; cursed and swore; sung and talked incessantly; awhile in German and then in English; and finally had to be confined to the bed with belt and handcuffs. This delirium continued during the night of the 24*th* and 25*th*, raving about the man with whom she had lived, and her child; that she had just come down from heaven and was expected back immediately; snatches of songs; and again would re-

fuse to keep her bed, as she then saw an old man who would kill her. On the 24th the calomel was repeated, with an injection of opium, assafœtida, and camphor. Beef-tea and milk-punch. In the erect posture, pulse 140; lying down, 114. Voice very hoarse. Constantly trying to expectorate a scanty, tenacious saliva. 26th.—Calm and quiet; had willingly taken an egg and other nourishment. Pulse 116. Still wandering and incoherent in conversation. One grain of the sulphate of morphia an hour for four hours, without producing sleep, though the pupils became much contracted. 29th.—Has slept during the night, but as wild and delirious as ever this morning. Obscenity and profanity, self-gratulation, revenge, hatred, and affection, were uttered by her indiscriminately and incessantly. 9 A. M.—Pulse 140. At this time I desired Dr. Buist to give her four drops of the medicinal hydrocyanic acid every four hours, which she took, as I believe, during at least thirty-six hours. At one time, by accident, she took eight drops, without ill effects. Its effect as an arterial sedative was well shown, for at 1 P. M. the pulse fell to 120, and at 5 P. M. to 80. 3 P. M.—Quieter and improving in all respects. No further treatment. From this date to November 14th she grew steadily better, having only occasional fits of delirium, and at that time needed no restraint. *December 12th.*—She became delirious again, and almost as unmanageable as ever; and a month elapsing without improvement, she was transferred to a lunatic asylum.

CASE 55.—*Puerperal mania.*

Mary Murphy; aged 25; first confinement; February 24, 1853; head presentation; twenty-four hours in labor; female child, living; Lying-in Asylum. Three days after confinement she was attacked by puerperal mania of a mild, refined type, chiefly referring to literary pursuits, with which she could have but slender acquaintance. Pulse ranging about 100. She never sought to injure her child, nor

did she conceive any aversion to it. Lactation, lochia, and dejections normal. Urine free from albumen, and presenting nothing under the microscope but quantities of crystals of the urate of ammonia, and some oil-globules. She was finally removed without any improvement in her condition, though there were no apprehensions felt for her life.

CASE 56.—*Puerperal mania.*

I remember another case in the asylum, of which I have few notes. The patient awoke suddenly in the night, exclaiming that her house was on fire and her husband “bur-r-ned.” She remained about a week inconsolable for his loss, constantly weeping and wringing her hands, and refusing to be comforted. The milk, lochia, dejections, and urine afforded me no indication for treatment, and I allowed her to wander through the building till the delirium exhausted itself, which it eventually did.

CASE 57.—*Puerperal mania.*—*Bellevue Hospital.*—*Francis R. Lyman, M. D., House Physician.*

M—— L——; native of Ireland; aged 21; single. Admitted September 10, 1861. Brought in by the police. From a woman who accompanied her the following history was obtained: Patient, a robust, healthy Irish girl, was confined on the 1st instant, and after a short labor was delivered of twins. The mother and children did well until the 5th of September, when she began to complain of pain in her head. This pain continued until the 8th, when, for the first time, she manifested symptoms of delirium, becoming unusually talkative, and exhibiting a flow of spirits quite contrary to that which she had shown for some days previous. The delirium became more violent, and on the 9th she attempted to take the life of one of her children. When she was admitted the delirium was so marked that she was confined to the cells. She walked the room, stopping at intervals, and staring with

a fixed gaze at the ceiling. She was constantly talking, calling her mother and other friends, repeating the same name in succession many times with great rapidity. Her attention was drawn for an instant as the cell-door opened, but she immediately turned to the wall and continued her ravings. On being urged to go to bed she declined, for fear of injury, and with the same breath cried out that "her child had been killed." Her face was flushed; eyes bright and sparkling; surface hot and dry. Her pulse was 120, and feeble in character. Abdomen flaccid. Uterus contracted, but larger than usual. She refused to protrude her tongue, and did so only after being repeatedly told to close her mouth. The tongue was large, and coated with a white fur at the base. As she was flowing constantly, though to a moderate amount, an examination was made, and the os uteri found to be the size of a quarter of a dollar, and patulous. She resisted nourishment with all her strength most obstinately. Beef-tea with half an ounce of wine was given by prying open her jaws. She was ordered wine, morphia, and ergot, with a purgative pill. *September 10th.*—Has not slept. Condition the same. The pill could not be given. An enema ordered. As she had not passed urine, the catheter was used, and three pints drawn. The flow continues. Ice in the vagina. Ergot increased. Heat and nitric acid give no precipitate in the urine. Specific gravity 1020. 9 P. M.—Pulse 96. Bowels have been freely opened. Offers less resistance to taking food and stimulants, though occasionally force has to be used. Morphia every four hours until she sleeps. *September 13th.*—Pulse 80. Grew more quiet toward morning, and slept an hour. Since last night has had half an ounce of wine every two hours. Bowels open. Passes her urine freely. During the day, though still delirious, she was more quiet. Has slept a little at intervals during the day. Pulse 72. *September 14th.*—Slept several hours during the night. Pulse 60. Mind clear. Confirms the history already obtained in every particular. Said that she had sent for the

father of her children, and he could not be found, which preyed on her mind for some days before she lost consciousness.

October 1st.—Has continued to improve. Her pulse has been slow, continuing at 48 for three days. To-day she had an hysterical convulsion. An enema was administered, bowels opened, and she soon regained consciousness, or showed that she had not lost it. Urine pale yellow in color; specific gravity 1010. No albumen.

October 31st.—Has taken the lactate of iron in the comp. infusion of gentian. As her health has improved, her hysterical convulsions disappeared. Is apparently perfectly well in mind and body.

CASE 58.—*Puerperal mania.*—*Dr. Fernandez, House Physician.*

Ellen Doyer; married; age not known; primipara; admitted into Bellevue January 9, 1861, with all the symptoms of puerperal mania, unattended with any fixed delusion. Pulse 104; weak. Surface warm, and inclined to perspiration. Tongue moist and somewhat coated. Mammæ not developed. Lochial discharge slight, but otherwise natural. Bowels constipated. Urine free from albumen now and subsequently. It was necessary to apply the strait-jacket, though this was not drawn tight. She was confined to her room for ten days, with the exception of two hours a day, when she was allowed to walk about under surveillance. Her nights were mostly sleepless, though she would occasionally enjoy short intervals of repose. Opium used but twice. Generous diet and stimulants (ʒ ij to ʒ iij daily) constituted her treatment, with attention to her bowels. On the 19th, amelioration of the symptoms became manifest. She was calm and subdued, and answered questions readily, and subsequently continued to improve. She retained no remembrance of her illness, which seemed due to ill-treatment from her husband. Her pulse was always rapid, ranging from 85 to 100, and once as high as 120.

CHAPTER V.

ANTE-PARTUM HEMORRHAGE.

Case: Repeated and unavoidable hemorrhages during pregnancy; induction of labor.—Reasons for deciding on an elective operation.—Interference and non-interference may be equally successful in certain cases.—*Case:* Placenta prævia.—*Case:* Placenta prævia; tampon and two-finger version.—*Case:* Forceps for ante-partum hemorrhage.—*Case:* Placenta prævia; Barnes's dilators; forceps.—Why prompt measures will not always be resorted to in time.—Tampon.—*Case:* Placenta prævia; presentation of foot and hand; prolapse of funis; adherent placenta.—Importance of distinguishing between the dilated and the dilatable cervix.

CASE 59.—*Repeated and unavoidable uterine hemorrhages during pregnancy; induction of premature labor; spongent; Barnes's dilators; douche; manual dilatation.*—*Dr. D. McLean Forman, House Surgeon.*

Mary Wilson, aged 25; primipara; born in the United States; single; was admitted into Bellevue on the 1st of January, 1867. She states that her last menstrual period ended on the 6th of June, 1866. She was perfectly well through her pregnancy until about the middle of February, when, on rising to her feet from the floor which she was scrubbing, she had a discharge of blood from the vagina. This hemorrhage was readily checked by remaining in the recumbent posture for a few days. From that time until the 4th of April, at various times, and without ascertainable exciting cause, she had seven hemorrhages, though she never lost a great deal of blood.

During the night of the 4th of April, while lying quietly

in bed, the hemorrhage recurred, and the patient lost considerable blood, the flow, however, ceasing spontaneously. Nothing abnormal could be ascertained on the following morning. On the afternoon of the 5th the hemorrhage returned. Dr. Elliot then saw the patient, made a vaginal examination, turned out several clots of blood, and found the os uteri just sufficiently dilated to admit the tip of his finger. Fœtal heart distinct a little below and to the left of the umbilicus. No uterine contractions. Woman not at all prostrated.

As the period of utero-gestation must be nearly accomplished, and the woman's life was endangered by the hemorrhages, Dr. Elliot decided to induce premature labor; and when the patient had been transferred to the lying-in ward, he introduced at 3 P. M. a sponge-tent (not waxed), the size of the little finger, into the cervical canal as far as the os internum. At 5½ P. M. this was removed, and the os internum found sufficiently dilated to admit the index-finger, and the vertex found presenting. The smallest-sized Barnes's dilator was now introduced by Dr. Forman and held in situ for twenty minutes; and during the last ten minutes of its stay several uterine contractions were excited. After removing this dilator, two fingers could be introduced into the uterus.

The loop of a larger dilator having broken, and the uterine efforts having become established, nothing was done. Os uteri very rigid. 9 P. M.—Os uteri the size of a quarter of a dollar, but very rigid. Pains increasing in frequency and severity. Dr. Elliot visited the patient, and ordered the warm douche against the inner edge of the cervix. 10 P. M.—Membranes have just ruptured during a severe pain. Os unchanged. 10½ P. M.—Warm douche for twenty minutes.

April 6th, 1 A. M.—Pains very severe, and recur at short intervals. Very little change in os. Warm douche (second) for half an hour. 4 A. M.—Os the size of a silver dollar. Still very rigid. Pains frequent and severe. Third douche

for half an hour. 6 A. M.—Os not so rigid. Head makes but little progress. Woman is extremely anxious; vomits a good deal, and is very tired. Chloroform moderately at the occurrence of each pain. She slept during the intervals. The anæsthetic was used in this way for half an hour, and the patient seemed to feel stronger after the short rest which it procured, and begged for more. 8 A. M.—Os dilatable. Used manual dilatation. Dr. Elliot arrived, repeated the manual dilatation, and ordered another douche. 10 A. M.—Anterior lip raised by the hand over the occiput. Fourth douche.

From this time till the completion of the labor at 1½ P. M., the case was left to nature. The child was born alive (R. O. A.), weight 4¼ pounds. The placenta came away without difficulty a few moments afterward. The mark of partial detachment was designated by a currant-jelly-like deposit of blood. Its position in utero could not be appreciated by the touch. After delivery, Mary needed careful attention for some little time, but did well and left the hospital.

She was readmitted on the 27th of August, complaining of great abdominal tenderness and of some obstruction to the act of defecation. The uterus was low down and retroverted, with a painful small tumor posteriorly and attached thereto, probably the ovary. Pelvic peritonitis diagnosticated and treated.

September 28th.—She and her child are doing very well.

Reasons for deciding on an elective Operation.—The induction of labor in this case of recurring hemorrhages during gestation was elective, and not of necessity. It would have been a justifiable, and possibly a perfectly safe practice, to have allowed the pregnancy to go on. It was not a frank case of placenta prævia. Still it was evident that these hemorrhages were unavoidable, and that they were related to some detachment, or faulty position of the placenta, although that organ could not be appreciated by the examining finger. The history of the pregnancy made it also

most probable that the woman had nearly reached her term. Now, under these circumstances, one of these attacks of unavoidable hemorrhage might have come on with such severity as to blanch the woman, and imperil her life. Should such a contingency coexist with a rigid cervix, and with the absence of uterine contractions, the lives of both mother and child might be placed, within a very short time, in the greatest danger. And therefore such considerations justified and invited induction of the labor, since the process involved no additional risk to either mother or child, but, on the other hand, was best adapted to dominate those which then threatened both.

Interference and non-interference may be equally successful in certain cases.—My experience has enabled me to observe many cases in which it would have been better for the patient if prompt and decided measures had been adopted at a time when the lives of mother and child were but slightly endangered; and has furnished me with illustrations of the great difficulties attending delivery, when the life of the mother was hanging in the balance; as well as of others in which the rapid and satisfactory advance of a labor, in other respects natural, seemed to mock our apprehensions.

CASE 60.—*Placenta prævia.*

Catherine McNevens, aged 27; fourth pregnancy; in labor nine hours. On the 28th of April, 1852, some pupils of Dr. Aylette called me to the case on account of the hemorrhage, and the recognition of the stringy placenta within the cervix. As the pains were good, os dilatable, and head advancing, I recommended ergot, in the conviction that the advancing head would answer as a tampon. A living female child was delivered without any operation, and the mother did well.

The complications of placenta prævia with premature labor offer additional difficulties in cases where the cervix is

unyielding, but nowadays we have control of the cervix uteri in pregnancy, and can generally command its movements.

The following cases illustrate some of these difficulties in placenta prævia which influenced my decision in the case of Mary Wilson.

CASE 61.—*Placenta prævia ; delivery by two-finger version at about the seventh month, after much trouble with an undilatable cervix, and previous partial separation of the placenta by the finger.*

Dr. Bishop sent for me on the 24th of July, 1859, in the case of Mrs. —, pregnant for the ninth or tenth time, in whom version had been performed by Dr. B. on a former occasion for shoulder presentation.

She was greatly weakened from loss of blood, the first hemorrhage having taken place three weeks before, and after that interval of time the present had commenced and continued for a couple of days, to such an extent as to demand the tampon, which Dr. B. had applied. The os uteri was dilated enough to allow the finger, introduced within the cervix, to detect the edge of the placenta on the left side. The cervix was not dilatable. No change having taken place in that respect during the next twenty hours, we applied as large a sponge-tent as would enter the cervix, and then tamponed the vagina with dampened cotton, and a T bandage. This was done in the night, and on the following day, at noon, in spite of all that could be done in the way of stimulation, it was evidently necessary to terminate the labor, although we distinctly declined to guarantee her life during the delivery.

With one assistant feeding brandy, the task was commenced. The tampon and sponge-tent having been removed, it was found that the os was not sufficiently dilated to admit the hand. But, fortunately, the position of the child being obliquely transverse, I succeeded in touching a foot with the

tips of the fingers which had penetrated within the uterine cavity, and by external manipulation forced down the limb with the other hand so as to obtain a good grasp, and enable me, with much effort, to complete a laborious operation, the difficulties of which were prolonged to the last by the sullen, unyielding grip of the foetal head by the cervix. Before proceeding to turn, however, I separated the placenta as far as my finger could reach, but I cannot tell whether much blood flowed during the operation or not; though I do believe that any further loss would have cost her her life. The small portion of placenta yet attached having been separated, we gave ergot and opium with beef-tea, and stimulants freely. She subsequently suffered from an attack of peritonitis, for which she was treated by Dr. Bishop, and entirely regained her health.

Remarks.—This case offers an illustration of the best methods which we had of controlling this form of uterine hemorrhage before the time of Barnes's dilators; and it is certain that an accurately-adapted sponge-tent in the cervix, with the vagina thoroughly packed with dampened cotton, cannot be surpassed in efficacy, though they lack certain requisites better supplied in the dilators.

It might have been better for this woman, and possibly for her child, if she had applied before for treatment, and if the labor had been induced.

CASE 62.—*Forceps for ante-partum hemorrhage.*

Ann Martin, aged 25; third confinement; April 18, 1852. Lying-in Asylum. When the os commenced to dilate, hemorrhage occurred to about a handful of clots. Rotation delayed, and after ten hours of labor, the head, which had originally presented the occiput to the left sacro-iliac synchondrosis, displayed a tendency to rotate to the sacrum. Foetal heart beating slowly. Having given chloroform, I applied the forceps, rotated the occiput to the front, and

delivered. The child was feeble, but rallied, and they both did well.

Remarks.—In this case the risks from recurrence of the hemorrhage and the likelihood of delay from an occipito-posterior rotation, prompted a successful instrumental interference, though the operation was elective, and the case might have done well if left entirely to itself.

The risks from recurring attacks of unavoidable hemorrhage, the advantages of Barnes's dilators, and instrumental interference, are shown in the following history :

CASE 63.—*Placenta prævia ; Barnes's dilators ; forceps.*

Drs. Pulling and Wilson sent for me on March 20th, 1860, to see Mrs. S——, a multipara, near the full term of her ninth pregnancy. One week previously she had consulted Dr. Pulling for uterine hemorrhage, which had been promptly controlled by ergot and opium. It returned again, however, on the 18th, and continued moderately until the morning of the 20th, when she flooded to syncope, and Dr. Pulling had been obliged to tampon the vagina. When I saw her she had been rallied by stimulants, and the flow was checked. She was pale, anæmic, nauseated, and of a highly nervous organization, but very weak withal, and much exhausted by the loss of blood. On removing the tampon, a handful or more of clots were turned out from the vagina, and the flow continued. Vaginal examination enabled me to reach the head through the unruptured membranes, and to feel the edge of the placenta distinctly. It was detached, and fell over the segment of the cervix, in front of the left sacro-iliac synchondrosis. The os uteri measured one and a half inches in its diameter, and we all appreciated that it was entirely *undilatable*. Dr. Pulling recognized the foetal heart in the right side of the uterus. There were no uterine contractions. It was thus evident that we had to deal with serious difficulties. The alternatives were :

1. Rupture of membranes, in hope that, with the induction of uterine contractions, the head might act as a tampon, and meanwhile to re-tampon the vagina.

2. To detach the placenta, and be guided by the effect on the flow.

3. To introduce a sponge-tent within the cervix, with or without previous rupture of the membranes, and then tampon the vagina.

4. To introduce Barnes's dilators, and then deliver so soon as the cervix was sufficiently dilatable.

The first plan was too uncertain, in the dangerous condition of our patient; the second was contra-indicated by the state of the foetal heart; the third was the measure on which I had relied with safety before Barnes's plan had been introduced, but now it seemed to us all that the dilators should be tried. Accordingly, I introduced the medium-sized one of the three which I had recently imported from Weiss, in London. Its introduction was unattended with difficulty, and it was carried between the head and the anterior uterine wall, in all probability detaching the membranes to some extent. The syringe attached was affixed before the introduction, and the dilator distended by cool water. In two hours we all met again. The dilator had not been displaced by her straining efforts in vomiting, nor by her alterations in position. The hemorrhage had been controlled. The os uteri was now dilated to such an extent that version was possible. The foetal head had not been displaced. On removing the instrument clots followed, which we estimated to amount in quantity to the volume of two or perhaps three distended leeches. Uterine contractions had now set in. While we were deliberating on the next step to pursue, the hemorrhage recommenced. The alternatives were now:

1. To introduce the largest-sized dilator, and fully expand the cervix.

2. To deliver by version.

3. By forceps.

Careful examination showed that the hand could pass through the cervix, and Drs. Pulling and Wilson inclined to version. The foetal heart, however, could not now be heard, and hence the necessity for prompt delivery became imperative, in the hope that it might still be beating. The patient was somewhat under the influence of the stimulants we had given her, but was too weak, from the loss of blood, for an anæsthetic. Introducing four fingers within the cervix, while the head was steadied at the pelvic brim by Dr. Pulling, I resolved to deliver with the forceps, and having introduced the blades *within* the cervix, and having locked them with some difficulty so as to seize the head in the diameter from the left brow to the right mastoid process, I drew the child into the world. The cervix came down before the head, instead of dilating, but by pressing strongly upward on the anterior lip during the tractions, it finally yielded, and gradually allowed the head to pass. The child weighed six pounds and a half, and was still-born, without the slightest pulsation of the heart. The placenta weighed a little over a pound, and its maternal surface was remarkably pale, looking as though it had been boiled. The portion we had touched was recognizable, and the microscope showed the placenta to be healthy.

Remarks.—The rapidity (two hours) in which this rigid cervix was dilated, was an advantage of great moment, and we were all delighted with the easy, agreeable, and prompt manner in which the os was forced to yield. When a multiparous os uteri is as undilatable as this was after such great loss of blood, it is extremely apt to prove rebellious to treatment, and it must not be forgotten, that in this case it retained its undilatable character to the last, and yielded reluctantly to the tractions on the head by the forceps.

Why prompt Measures will not always be resorted to in time.—Too many of these cases of unavoidable hemorrhage are allowed to place the mother's life in serious danger, and

to peril if not destroy the life of the child, when more prompt and determined measures might have warded off the risk to both.

Still these delays will always occur, because, if the mother and child are not saved in cases where the practitioner takes the responsibility of interference, the following criticism will never be withheld: "Perhaps that hemorrhage would never have recurred, or in any event have amounted to much, and it would certainly have been better to have waited, at least, until the operation became one of necessity."

It is true that no one is justified in proceeding at once to such a measure as the induction of labor in these cases, or in any other which admits of delay, unless fortified by a consultation, or sustained by a long and tried experience. And unless there is the best reason for expecting that the result will be favorable to mother and child, the operation must be deferred as long as may be compatible with the safety of the mother if the child be premature; and as an absolutely controlling duty, if it be non-viable. It must also be deferred if in rare contingencies the delivery of the child may be rendered dangerous by faulty positions, which can be remedied by manipulation, or may be corrected by time before induction of the labor.

Tampon.—In these cases, where the hemorrhage threatens the lives of mother and child and the tampon becomes necessary, it is very often inefficiently applied. The vagina of a pregnant woman can never be tamponed without risking the induction of labor; still there may be cases in which we may be obliged to resort to this procedure during pregnancy without desiring such a result. Various methods are used.

My friend and colleague, Prof. I. E. Taylor, recommends in his admirable paper on placenta prævia, published by the New York State Medical Society, the use of "the ordinary rolled surgical bandage, two inches wide, which is easily in-

troduced. The vagina can be packed with it fully and completely, pressing the soft, long, flabby cervix against the placenta (thus acting as a free compressor, and preventing any hemorrhage taking place internally or externally, and also as an oxytocic), and permitting the plug to remain till the pains are increasing, or becoming more active, or sometimes even till it may be cast out of the vagina."

The colpeurynter is preferred by many, and offers great advantages from the fact that it can frequently be refilled with cool or iced water; and Dr. Greenhalgh prefers an air ball covered with spongio-piline. Large sponges are often used, and these rendered astringent by vinegar and other agents. It is therefore evident that there is no method which is so preëminently good as to rally all practitioners to the support of its claims.

If we tampon at all, we must not allow any risk to be run from the leaking of blood above or by the sides of the tampon; so that while not a drop may flow externally, the woman sinks from concealed hemorrhage. In many of these cases the loss of a very little more blood will turn the scale.

From this reasoning I would prefer to plug, in any alarming case, both the cervix and the vagina, were it not for Barnes's dilators, which dispense with plugging the vagina, and combine every requisite, except in those very rare cases where the cervix is not sufficiently dilatable to receive the smallest one; or where it cannot be kept in place; or where, as I have said, we may decide to plug the vagina alone.

In cases of uterine hemorrhage from any source, where Barnes's dilators cannot be used, the sponge-tent can always be adopted; and lately, in consultation with Prof. Sayre, in a terrible case of protracted flooding, after a miscarriage, in one of the most bloodless women I ever saw, we feared that she would die if any more blood should be lost. Under these circumstances I first tamponed the vagina and the cervix with mass after mass of dampened cotton, introduced and packed systematically, so as to thoroughly distend the upper part of

the vagina (a practice that I have followed for many years), and left with a feeling of absolute certainty that no flow could take place. Subsequently, when she had rallied somewhat, we dilated the cervix with a large sponge-tent to remove the remains of the retained ovum, and as the manipulation was so delicate, and the patient so alarmingly weak, I used, on the following night, a finger of an India-rubber glove, such as are used in gardening (a plan which has been employed by Dr. Emmett), and having introduced it within the cervix, injected it to the fullest extent with water, and left it in situ. It held its place perfectly through the night. Subsequently she continued to improve, and the hemorrhage never recurred; but she justified all our apprehensions by dying suddenly, in a fortnight, from syncope after exertion.

Dampened cotton packed within the vagina, with a clear recollection of the distensibility of the upper part, is more thoroughly reliable than any other method of packing the vagina. Still in advanced pregnancy this will not prevent the risk from hemorrhage within the cervix and uterus.

A trial of the colpeurynter can be previously made, and if effectual, is less troublesome and painful to the patient than properly-applied dampened cotton. It moreover offers the advantage of being compatible with frequent examinations, an element of great importance when we are watching our opportunity to terminate the labor.

* CASE 64.—*Placenta prævia; presentation of foot and hand; prolapse of funis; adherent placenta.*

Consultation with Dr. Eustace Trenor; report condensed from his notes. Mrs. Kane; aged thirty; has suffered for several years from bad health and bad habits, and has on three occasions flooded seriously after miscarriages. In March, when six months gone, she was much excited in endeavoring to procure bail for her husband, who had been arrested for disorderly conduct. On the next day she

had a moderate attack of hemorrhage, controlled by Dr. Trenor. Two subsequent attacks were controlled by Dr. E. Hoffman.

June 2d.—She was awakened during the night by labor-pains, followed by liquor amnii, when the pains ceased, and she flowed profusely. Dr. Trenor saw her in about three hours, and found her rather pale, with a quick and somewhat feeble pulse of about 88, complaining of weakness, and somewhat restless. Os uteri pretty high up, dilated to about the size of half a dollar, rigid, thick, and filled with a clot. At Dr. T.'s request, I saw her at 7 p. m., when the pulse was 83, moderately strong; lips somewhat blanched; expression pretty good; no dizziness or dimness of vision; voice strong; abdomen flaccid; long axis of uterus transverse; foetal heart in right lumbar region; no clots in vagina; no flow of blood; an old foetid clot, weighing about 3 ij lying within the os. No central implantation of placenta, and no placenta felt at that time. Os uteri dilated to the diameter of $1\frac{1}{2}$ inches, and not in any way dilatable. Two fingers passed within detected either an olecranon process, or an os calcis. It seemed to me most likely the former. The tips of either fingers or toes could also just be touched. I thought them most likely the fingers.

11 p. m.—Saw the patient again with Dr. Trenor and Dr. Maury. Pulse 78; moderately strong. Expression better. No hemorrhage. Os as before. Presenting parts not reached more readily, but a flap of the stringy placenta now recognized hanging over the os on the right side.

June 3d.—Has vomited once or twice during the night, and then slept quietly. No hemorrhage. Condition rather better. Slight pains commencing. Os uteri softer. At noon, Dr. T. found that dilatation was slowly progressing under the influence of moderate uterine contractions. Ordered $\bar{3}$ j ol. ric., as the bowels had not been moved since May 30th. At about 4 p. m. Dr. Trenor called on me, and stated that a loop of the cord was now presenting at the os uteri

and pulsating. Went immediately and placed the woman most accurately in the position recommended by Dr. Thomas, and introducing my left hand entirely within the vagina, returned the loop so deeply within the uterus that it could just be touched by my two fore-fingers buried within it. I thus retained it during two pains, my fingers, in the direction given to the superior strait, pointing downward and toward the bed. In the interval that followed the second uterine contraction, I withdrew my fingers, and found, to my regret, that the next pain drove the cord *up* the inclined plane of the superior strait into the vagina. A repetition of this manœuvre was attended with a similar result. Not deeming it prudent to delay longer, but maintaining the woman in the same position, I turned my attention to the os uteri, which I now found dilatable enough to admit my hand sufficiently far to recognize, first, a hand, which I dropped, and then a foot, on which I drew (the woman all the while in the same position), until I had drawn the thigh into the world, when I turned the patient on her back, and rapidly completed delivery. The child gasped, breathed, had a good color, and gave every sign of reviving, but died in spite of every effort used for restoring life. No post-mortem.

The uterus, meanwhile, had firmly contracted around the placenta, 3 ij of Canavan's fluid extract of ergot having been given immediately after the birth of the child, but Dr. Trenor called my attention to the fact that blood was flowing in a continued stream from the vagina. On introducing my hand into the uterus, I regretted to find that the placenta was everywhere adherent, except at the flap alluded to, and removed it with some trouble, being obliged to leave some pieces which could not be detached without bringing the uterine wall with them. The flooding diminished, and the uterus contracted, but not firmly. 3 iij of ergot and brandy given. Her expression, behavior, and pulse, were now such as to threaten instant death. Dr. Trenor went, at my request, for Dr. Van Buren, to transfuse the patient. It was,

however, nearly two hours before Dr. V. B. arrived, and by this time the hemorrhage had been controlled.

During all this time her head was thrown down, arms and legs held up, ice over the fundus, while I carefully grasped the uterus with one hand, which at the same time compressed the aorta through the yielding abdominal walls; and with the other, with the aid of ice in the vagina, irritated the cervix, in the hope of reflex action, and thus, with the aid of ergot, brandy, chafing, and hot cloths, after an hour and a half hard work, rallied the patient, whose pulse had twice disappeared from her wrist. The pulse shortly rallied after vomiting, and at 8.30 was 120, very feeble, and the patient restless, sighing, and tossing about, with a very feeble and exhausted expression.

June 5th, 10.30 A. M.—Since the last note, Dr. Trenor has carefully fed the patient on beef-tea, brandy, and opium, and she has rallied. Ergot kept in readiness, quinine and sulph. acid given, and a blister has been applied over abdomen, to anticipate metro-peritonitis.

June 6th, 4 A. M.—Dr. Trenor was sent for in haste, as the patient had been flowing freely since 1.30 A. M. By the time he had reached the house, the patient had taken $\frac{5}{8}$ ss tinct. ergot. A sheet and three smaller cloths were covered with blood, and there was a great deal in the bed. The patient was blanched, almost pulseless, and too feeble to speak above a whisper. On examination, the vagina was found filled with a large clot, and the uterus with another, both of which were removed. The uterus was flabby and enlarged. $\frac{5}{8}$ ss. more of the tinct. ergot, with irritation of the cervix by the fingers, brought about a lazy uterine contraction. Brandy was given freely, and the uterus compressed by the hand; but the hemorrhage persisting, Dr. T. plugged the vagina with strips of oiled linen, and finally brought about a firm contraction, which was insured by the hand for three hours, when the binder was reapplied. During these three hours Dr. T. had kept the head down and the arms and legs in the

air, and had given brandy somewhat freely. The pulse, at the wrist, was now but just perceptible, and sensation in the legs almost gone. She complained of darkness, her lips were blue, and the skin of the upper lip and toward the alæ of the nose acquired a dusky hue. After the application of the binder, brandy and beef-tea were given, and she gradually rallied, sleeping at first, and afterward becoming restless, throwing herself on her side, and from one side of the bed to the other, suddenly. 10 A. M.—Pulse 124. Has vomited five or six times, and taken $\frac{3}{4}$ gr. of opium. 2.45 P. M.—Suddenly attacked with a violent fit of vomiting, throwing off in all about a quart of fluid—at first the nourishment which she had been taking, and then matter of a dark greenish hue, with greenish and very dark flocculent matter in it, and without odor. In about fifteen minutes a violent chill occurred, which lasted fifteen minutes, and was followed by reaction.

June 7th, 11 A. M.—Tampon removed from the vagina. During the night had several hard chills, one of them apparently excited by swallowing $\frac{3}{4}$ ss of Labarracque's Solution, given by mistake. Stomach very irritable; takes very little. Some attacks of faintness. Coughs, with pain in the ovarian regions. Pulse 124. 4 P. M.—Pulse 140. Resp. 30. Abdomen more tympanitic, and tenderness spreading upward laterally. Micturition causes severe pain in the hypogastric region. The skin is covered with a cold perspiration, and dusky, livid spots are appearing on the thorax anteriorly. Ordered, every three hours, 3j of a solution of the sulphate of morphia, gr. iiiss.— $\frac{3}{4}$ iv. of water.

June 8th, 10 P. M.—Under the influence of morphia. Pupils contracted; patient quiet and sleepy. Spots disappearing from thorax. Pain less acute, but more extensive. Pulse 116, stronger and fuller than yesterday. Respiration 36. Continue morphia, and ol. tereb. gtt. x. every second hour, and an enema containing ol. tereb. 3ij and $\frac{3}{4}$ j ol. ric. in emulsion.

5 P. M.—A little more restless. Pulse 134; respiration 38; subsultus tendinum. Has had one dark-green fluid evacuation resembling the matter vomited two days ago. Abdomen softer and less tympanitic, but not less painful. Lochia have almost ceased; tongue becoming dry and brown, with disposition to crack. Face very anxious. Lies on her side with knees drawn up.

9th, 11 A. M.—Pulse 120; respiration 58.

7 P. M.—Died. No post-mortem allowed.

In no cases is the distinction between the dilated and the dilatable cervix more important than in bad cases of ante-partum hemorrhage.—Let every young practitioner remember this practical distinction. They were very forcibly impressed on me in a fatal case of placenta prævia which I saw abroad. A large piece of sponge was placed in the vagina, which was removed at intervals during the day, and the operation of version decided against, because the os was not found to be any more dilated. Meanwhile the inefficient tampon did not prevent the dribbling and clotting of blood in the upper part of the vagina; and, finally, when the condition of the patient demanded an effort, the operator found, to use his own words, that “the neck yielded like wet paper.”

CHAPTER VI.

INDUCTION OF LABOR.

Methods for dilating the os and cervix uteri.—Douche.—*Case*: Induction of labor with the douche for deformity of brim.—*Case*: Induction of labor with the douche for deformity of the pelvis, and irremediable anterior obliquity of the uterus.—*Case*: Induction of labor with the douche for uncontrollable vomiting in pregnancy.—Douche in rigid os uteri.—*Case*: Dilatation of rigid os by douche.—*Case*: Dilatation of rigid os by douche.—Barnes's dilators.—*Case*: Rigid os treated by Barnes's dilators, with immediate contraction of the cervix when these were withdrawn.—*Case*: Induction of labor with Barnes's dilators for hemiplegia, etc.—Sponge, or other tents.—Methods for disinfecting these.—Manual dilatation.—*Case*: Rigid os; douche; manual dilatation; forceps.—Methods for inducing uterine contraction.—*Case*: Induction of labor for deformity; unusual difficulty in bringing on contraction.—*Case*: Previous labor of this patient.—The introduction of a catheter between the membranes and the uterus.—*Case*: Induction of labor for deformity, with douche, dilators, and catheter.—*Case*: Induction of labor for deformity, with douche, dilators, and catheter.—Separation of membranes.—Electric and galvanic currents in the induction of uterine contractions; in amenorrhœa, and as a galactagogue.—Puncture of the membranes.—Medicines for inducing uterine contractions.—*Case*: Tedious labor; ergot; forceps.—*Case*: Deformity of pelvis; ergot; forceps.

In connection with the case of Mary Wilson, No. 59, *the management of the rigid or unyielding cervix uteri* may be considered, since Barnes's dilators, warm douches, and manual dilatation were all employed therein.

The efficiency of the various and excellent methods which we now possess for dilating the cervix uteri has been summed up, and their clinical rank assigned by me in accordance with my convictions, in a paper published in vol. iii.

of the "Transactions of the New York Academy of Medicine" for 1866, which will serve as the basis of these remarks,

I. The *douche* is always attainable, always serviceable, very often entirely efficient in itself; never painful or dangerous, when properly used, in cases where there are no conditions which prevent the risk of fatigue, delay, and some exposure which its use demands. These objections, and the risk of faulty direction of the stream, or admixture of air, in careless hands, are the main objections that can be raised against its use. I should not attach value, from my experience with it in localities where puerperal fever is liable to be bred and propagated, to any argument that it is liable to induce risks of metro-peritonitis. The only influence which it may exert for evil on the child is the possibility that its faulty use might change the position. And in considering this risk, we must not forget the recorded cases where such "*culbute*" has been observed without any recognized cause. I should not think of employing it in cases of placenta prævia or dangerous ante-partum hemorrhage; nor should I in other cases apprehend that it would provoke hemorrhage. Case 59 illustrates this fact.

The *douche* cannot be used effectually unless the stream be directed steadily against and within the inner rim of the os uteri. A vaginal *douche* would be too uncertain in its action. Silbert, in his monograph, describes the inefficacy of the *douche* used as a vaginal injection until the stream was properly directed against the os uteri. It has occurred to me on several occasions to direct, in the practice of others, the use of the *douche* for the purpose of relaxing a rigid os and cervix uteri, and to find it ineffectual until similar precautions were used. In directing the stream against the os, it is to be remembered that an accumulation within the uterus is liable to change the position of the child, or, perhaps, to develop serious dangers for the mother. All risk of this kind is obviated if care be taken to see that the return

of water from the vagina is about equal to that injected. I prefer always to use water of a temperature most agreeable to the patient, and to inject one or two gallons at once with an ordinary Davidson's syringe, taking care to keep the point of the fore-finger constantly a little in advance of the nozzle, so as to appreciate the direction of the stream. I have memoranda of over thirty cases in which I have used the douche in cases of rigidity of the cervix interfering with delivery, and in cases of the induction of premature labor. These memoranda by no means represent my experience in the treatment of rigidity alone. It has very rarely failed to do excellent service, and in some cases has procured such dilatability as to allow of immediate manual dilatation, even where there had been no apparent progress. Used in the manner which I have recommended, with the patient on her back, as we place her for forceps, I have never met with any evil results from its use. It has failed me; it has demanded frequent repetitions and delay, but it has proved harmless to mother and child; and I would no more dread to use it with such precautions, than an ordinary vaginal injection.

CASE 65.—*Induction of premature labor with the douche; prolapse of funis; footling presentation.*

On the 16th of December, 1853, while Resident Physician of the New York Lying-in Asylum, I induced premature labor with the douche, under the following circumstances, *certainly one of the earliest, if not the very earliest case of its class in this country.*

Mary Kipple, healthy-looking, and apparently well-formed, had been twice delivered with the perforator and crotchet. Pregnant for the third time, she was brought to Prof. Gilman for advice, and recommended to the asylum. She was then about seven months gone, and the foetal heart distinctly audible. The conjugate diameter of the brim was much diminished from projection of the promontory and upper

part of the sacrum ; pelvis otherwise normal. Drs. Cock, Beadle, Metcalfe, and T. F. Cock, physicians to the asylum, saw the patient, and they, with Dr. Gilman, concurred in urging the induction of premature labor.

I selected the method recommended by Kiwisch, from previous personal experience of its efficiency in relaxing the rigid os in labor. At 11 P. M., December 16, 1853, I injected about two gallons of tepid water, in a steady stream, well against the os uteri. The instrument used was the admirable India-rubber syringe, invented by Higginson, of Liverpool, which had been kindly sent to me by Prof. Simpson. The patient was placed on her back, with her nates projecting somewhat over the edge of the bed, and a large tub received the water as it escaped from the vagina. The instrument that I used enabled me to direct the nozzle of the syringe with one hand, and to regulate its action with the other.

December 17th, 9 A. M.—The vagina and the os uteri had commenced to relax, though the patient had enjoyed a quiet night's rest, and felt no symptom of approaching labor.

2 P. M.—Repeated the injection, which neither annoyed the patient in anticipation, or performance. The os was now softened and the vagina much relaxed, while slight wandering pains around the back and abdomen denoted incipient uterine contraction.

December 18th, 2 A. M.—Entering the ward to repeat the injection, I found the patient in bed, unconscious of any symptom of approaching labor, though the os was now dilating very satisfactorily, and the membranes commencing to protrude in a somewhat cylindrical form. At 5 A. M. they ruptured, when the funis prolapsed to the vulva, and the right foot entered the vagina.

The funis was pulsating vigorously ; and the arguments used by Dr. Simpson to illustrate the advantages of version in deformities of the pelvic brim, satisfied my mind at that time that the pelvic presentation would rather increase the chances of safety for the child, were it not for the unfortu-

nate complication present. But the child was larger than I anticipated (weighing five pounds two ounces), and before my best-directed efforts could draw the shoulders and head through the contracted brim, all pulsations in the funis had ceased, and no endeavors of mine could resuscitate the boy.

The placenta passed without difficulty, and so little did she suffer from the labor, that Mrs. Kipple left the house surreptitiously a few days after, rather than await the time when she might do so without incurring risk.

In my judgment, the unexpected size of the infant and the untoward complication of the prolapsed funis alone prevented the birth of a living child; while it is evident that no labor could advance more insidiously, or entail less suffering.

It is interesting to note the closeness with which the phenomena presented simulate those of the most fortunate labor. First, relaxation of the soft parts, with increased secretion; the os then softens, relaxes, and dilates, when the pouch of membranes passes intact into the vagina. The first stage of labor may be said to be accomplished with the least possible inconvenience, and the patient saved in great measure from its attendant sufferings; which are probably productive of more annoyance and anxiety than the severer expulsive efforts which promise speedy relief to the burden.

In the following case the value of the douche in dilating the cervix and inducing labor is shown:

CASE 66.—*Induction of premature labor with the douche in a deformed woman with marked, irremediable anterior obliquity.*—Dr. J. Smith Dodge, Jr., House Physician.

Mary Donovan; Irish; primipara; aged 30; attracted my observation, in the lying-in ward of Bellevue, by her deformity. She is four feet and a half high, strongly built, with broad shoulders and well-formed limbs. The spine presents a well-marked posterior curvature, involving the last six dorsal vertebræ, and probably the upper lumbar, forming

an arc with a prominence of at least an inch. There is no lateral curvature, but the projection is greater to the left of the spinous processes. Anteriorly the sternum is decidedly bowed, rising abruptly outward from the ensiform cartilage. Right chest well formed; three upper ribs on the left side convex at their articulations with the cartilages.

In conversation I found her of a very low order of intelligence, and some of her statements were ascertained to be wilfully false, obliging me to rely on my own examination for the truth of her condition. It was impossible to ascertain the exact date of her pregnancy, but she expected to be confined some time during April; and according to my observation patients are apt to ante-date the period of their gestation to exaggerate their claim on the charity.

Nor could a satisfactory history of the deformity be obtained. According to her statement she has suffered for some years from epileptiform convulsions, though her tongue was never bitten. These convulsions have not recurred since her gestation. Kidneys apparently healthy. She remembers an attack of rheumatism, affecting the larger joints, lasting for some weeks, and accompanied with symptoms referred to the heart, though she had no medical care.

Examination of the chest gave marked pulsation in the supra-sternal fossa, above the edge of the sternum; dulness commencing in the third intercostal space, and extending directly downward to the stomach; apex in sixth intercostal space, five inches from the mesian line; loud systolic murmur at the base transmitted downward in the mesian line, but scarcely audible at the apex; this murmur recognizable in the subclavians, not in the carotids; rhonchus anteriorly on the left side, with occasional coarse crepitus in the lateral region; right chest normal; posteriorly, well-marked systolic murmur heard on the right side of the tumor, at the site of the posterior curvature.

Abdominal walls tense; long axis of uterus in the mesian line, but that organ decidedly anteverted, and not susceptible

of replacement by position ; when on her back, with the head unsupported by pillows, a line let fall from the umbilicus would pass through the symphysis pubis. It seemed to me that an inferior extremity could be detected at the fundus uteri ; uterine souffle, well marked over the left iliac fossa, and with less distinctness on the opposite side. Fœtal heart not made out at that examination, but distinctly heard on the following day in the left lateral uterine region. Satisfactory examination of the pelvis rendered impossible, by the conduct of the patient, but certainly not deformed to any extent that would greatly interfere with labor ; upper vaginal wall decidedly prolapsed ; os much retroverted and high up ; cervix admitting little finger ; no presentation to be detected through the os, nor through the cervix. Under these circumstances I deemed it advisable to induce labor with the warm-water douche for the following reasons :

1. That the operation was in no wise dangerous.
2. That the want of space between the diaphragm and pelvis would exaggerate the existing anterior obliquity of the uterus, in direct ratio to the development of the fœtus.
3. That, although a primipara, entrance into the pelvis of the lesser ovoid of the uterus had already been prevented ; the os much retroverted ; and prolapse of the upper vaginal wall induced.
4. That, in my experience, these unfavorable circumstances in puerperal women, with such deformity, had greatly increased the danger to mother and child.
5. That these dangers were increased by disease of the heart.
6. That they were still further augmented by a most unfortunate tendency to pelvic cellulitis, and to peritonitis ; in the lying-in wards of the hospital, not likely to be removed before the warm weather.
7. That the child was living, and fitted for extra-uterine life.

Consultation.—The patient was examined by Drs. J. T.

Metcalfe, I. E. Taylor, and B. F. Barker. Dr. Metcalfe sanctioned the operation, and thought the heart-complication of great importance; he suggested, as possible, that the murmur over spinal curvature might be transmitted uterine souffle. On the 9th of April, however, the sound remained unaltered. Dr. Barker approved of immediate delivery, but preferred the sponge to the douche. Dr. Taylor recognized the dangers of the case, but preferred that gestation should not be interrupted.

Operation.—The patient consented to the operation, and at 3 p. m., March 22, 1857, I proceeded to apply the douche. I should have liked to employ the carbonic acid gas, but so much time was demanded in the operation detailed by Scanzoni, as to make me unwilling to use it in the present instance; and long familiarity with the douche, in relaxing the rigid os uteri during labor, gave me personal confidence in the method that I felt in no other.

In the operation I was aided by Dr. J. Smith Dodge, Jr., one of the house physicians, then in charge of the lying-in ward, who gave the patient the most thorough and intelligent care. The instrument used was the ordinary enema syringe, with a piston and tube: and I directed the nozzle carefully, so that the stream passed against and within the os uteri; a matter rendered difficult by the retroversion of the os, and more so by the excessive apprehension and struggles of my patient, with whom reasoning and persuasion did not avail. After injecting about half a gallon, I stopped, in the hope that she might become more reasonable with time. 10 p. m.—Recommenced, when such were her insane struggles that I had her brought under the influence of chloroform, when about two gallons of warm water were injected to my satisfaction, and with appreciable effect; just after withdrawal of the instrument vomiting occurred, preceded by violent straining efforts, and immediately afterward a gush of waters demonstrated rupture of the membranes.

March 23d, 7 A. M.—Patient has slept during the night,

and offers much less resistance to the operation. About six quarts were injected; cervix thinner; vagina cool and relaxing. 2 P. M.—Has had pains in loins and hypogastric regions, with short but marked intervals; vagina much relaxed, cervix very thin, dilated to about an inch in diameter, and dilatable. 5 P. M.—The nurse summoned Dr. Dodge hastily, as she stated that “the waters had broken.” Dr. D. found her fully in labor; pains strong and regular; quiet now, and hopeful; os fully dilated, head fairly engaging in the pelvis; pulse 152, rising with strong expulsive efforts to 170, and rather due, in Dr. Dodge’s opinion, to irritability of the diseased heart than to general excitement. The head passed the perineum about 9 P. M.; posterior fontanelle turning to left thigh; child made two efforts at respiration, when Dr. D. completed the delivery with his finger in the axilla. The child was a male, apparently still-born, but revived with stimulus to the skin with chloroform, and alternate plunging into hot and cold water.

At this time I arrived, and continued the use of the same means, while Dr. Dodge attended to the placenta. Respiration became natural, and the child was wrapped up in warm cotton and blankets; weight five pounds ten ounces, fully formed for extra-uterine life; *the frontal bone was depressed half an inch below the parietal*. Within half an hour the placenta and membranes came away, and the uterus contracted firmly.

The mother slept some during the night. Pulse 150; skin soft; tongue moist; nervous system composed. She has since made a good recovery. *April 9th.*—I satisfied myself that the left side of the pelvis, opposite the cotyloid cavity, is narrowed by its approximation to the mesian line.

The child’s body became warm, though its uncovered face remained cool. Four hours after birth it bled from the nose, lost about an ounce of blood, and died in twenty minutes, without convulsions. *Autopsy* twelve hours after death.

Depression, already described, of frontal bone quite evident; extravasated blood beneath the arachnoid, at the posterior and convex surface of right hemisphere; clot the size of a gooseberry, in the posterior horn of each lateral ventricle, and a smaller one in the left optic thalamus; blood extravasated at the base of the brain.

Effect of Obliquity in Mary Donovan.—Certainly what I apprehended chiefly with Mary Donovan was that the irremediable obliquity of the uterus would render the dip of the foetal head into the pelvic brim difficult, by transmitting the uterine force through the foetal spinal column against the upper part of the sacrum, where it would be met with resistance in so direct a line as to need, perhaps, the assistance of art—certainly to protract the labor.

The correctness of this view appears to me to be demonstrated by the cause of the child's death, even under the favorable circumstances of its birth. On reviewing the case, it will be seen that the obstacle to the passage of the foetus could not have arisen from the cervix, for the os was fully dilated by the time that the expulsive efforts were called into play; and as the presentation was the most favorable (left occipito-anterior), it is certain that the depression of the frontal bone must have been occasioned by pressure against the posterior pelvic wall. It is evident that it could not have occurred before labor set in, for the head had not entered the pelvis, as it so frequently does in primiparæ.

Burns has remarked that Daventer, who was a candid and experienced man, has, perhaps, made the moderns too inattentive to uterine obliquities, by going too much to the other extreme.

Moreover, in many of these cases we may say with Mauriceau: "Celle qui est petite ou trapuë, ou contrefaite comme la bossuë, n'a pas la poitrine assez forte pour faire valoir ses douleurs et les pousser en bas."

CASE 67.—*Uncontrollable vomiting in pregnancy ; exhaustion ; induction of premature labor with the douche.*—*Drs. E. W. Lambert and N. Barron, Bellevue.*

Ellen McGowan, aged 32 ; Irish ; married ; ninth pregnancy ; has never miscarried, and has had easy and good labors. About January 1, 1858, was first taken with nausea and vomiting, which became persistent. For three weeks the material vomited was bitter, and often green ; afterward not bitter. Always constipated ; bowels only moving after the administration of medicines. Bismuth, lime-water, hydrocyanic acid, bicarbonate of soda, chloroform, creasote, and hyposulphite of soda internally, blisters to epigastrium, simple, and sprinkled over with morphia, and many other remedies were tried, with little or no effect. Supporting treatment was resorted to by the mouth and by the rectum, but she steadily lost ground from the date of her admission. February 13th a consultation was called, and a second on the 15th, in both of which Dr. Elliot's desire to induce premature labor was not supported. On the evening of the 16th Dr. Metcalfe sanctioned the operation, and she was transferred to the lying-in ward at half-past 9 p. m. She was then in a very critical condition, almost exhausted, but refused to be carried, and walked between two assistants. She sat in a chair several minutes without being noticed, as three other deliveries were going on at that immediate time. Pulse 104, small, and feeble. On vaginal examination the os uteri was found quite patulous ; head low down and movable ; plenty of liquor amnii. Foetal heart distinct. 10.45 p. m., a warm douche of one and a half gallons played against and within the uterine orifice, and patient immediately covered up warm in bed. Two tablespoonfuls of iced champagne were given, and immediately rejected. *February 17th, 3 A. M.*—Several warm douches, followed by hot air bath, as she complained of chilliness. 7 A. M., pulse 94, and of the same character.

Patient has refused the champagne, asked for tea, and occasionally for water. Fœtal heart not now perceptible. 9 A. M. Dr. Elliot's visit. Pains are commencing, regular, and of some force. Uterine action commenced before the patient was aware of it, and when told of the fact, denied that she had any pains. At 10.20 the membranes were ruptured. Fœtal heart again heard. Child born, living, at 2.45 P. M., apparently between seven and eight months, small and puny. Injections of brandy and the wine of ergot given. Uterus contracted well. At 4 P. M. the placenta remaining wholly within the uterus, Dr. Elliot introduced his hand and found it entirely adherent to the anterior wall. No hour-glass or irregular contraction. Removed with some difficulty, but without hemorrhage. Endeavored to give her milk in small quantities, which she relished, but continued to sink, and died a little after midnight; the infant having died just before. Intelligence uninterruptedly clear; vomiting never having been checked. *Autopsy* by Dr. Lambert thirty hours after death. Head not examined.

Chest.—Right lung healthy, with a small cicatrix at the apex. Left lung everywhere adherent from old pleurisy, at apex a few unsoftened tubercles. Heart healthy.

Abdomen.—No peritonitis; stomach contained no fluid. Mucous membrane has a slight greenish-yellow tinge, and somewhat mammillated. No softening, except in greater cul-de-sac; no traces of inflammation. Spleen natural in color, size, and consistence; liver of normal size and color; general and marked softening; posterior and under surface of a semi-fluid and pulaceous consistence. In attempting to remove the organ the fingers would sink their entire length upon the slightest pressure. Gall-bladder natural. Kidneys pale, flabby, and soft; secreting portion apparently normal. Uterus well contracted, but the tissue easily lacerated. Cavity contained a few small coagula. No signs of inflammation. The microscope showed that the liver-cells contained no unusual amount of fat; some cells were partially disin-

tegrated, and free granular matter was very abundant. Some kidney-cells somewhat granular.

My service in Bellevue always supplies me with additional clinical illustrations of the value of the douche, nor has the present one been an exception to the rule. Among many cases in my possession and on record, the following happen to present themselves at the moment, and are published, not on account of their rarity, but because they serve as types of so many that have come under my observation.

CASE 68.—*Rigid os promptly dilated by the warm douche.*—Bellevue.—Dr. Henry C. Eno, House Physician.

Catharine Daker, born in New York; aged 20; single; entered Bellevue Hospital during the ninth month of her first pregnancy. At 4 o'clock, A. M., June 20, 1865, her waters broke, but she had no pains until the morning of June 21st. They began to be severe at 12 M. The patient did not come under observation until 8 P. M. of the same day. The os uteri was then about two inches in diameter, but thick and very resisting. At 8 A. M., June 22d, the os was about three-quarters dilated, but very hard and rigid, and continued so, the head making no advance during the morning. At 2.15 P. M., the patient was feverish with a pulse of 110, and still no advance. At this time, in accordance with Dr. Elliot's directions, two gallons of warm water were thrown against the os, which almost instantly became softer. At 3 P. M. was fully dilated, and at 3.53 P. M. the head of the child was delivered.

CASE 69.—*Rigidity of os uteri treated by warm douche.*—Dr. Mead, House Surgeon.

Joanna Sharkey; aged 28; primipara. Labor-pains first felt May 13th, 5 A. M. When examined at 8.30 P. M., os was

dilated to about the size of a half-dollar; the membranes unruptured; presentation, cephalic. The os did not dilate, and at 8 A. M., May 14th, the membranes were ruptured by the uterine contractions. 12 M.—Os still rigid, undilated and undilatable. A gallon of warm water was now injected against the internal surface of the os uteri. Three hours later it was fully dilated, and the head had engaged in superior strait. Position, L. O. A. The pains now became regular, and she was delivered at 4.45 P. M. of a female child, weighing $8\frac{1}{2}$ pounds. Cord around the neck. The child was asphyxiated, but alternations of hot and cold baths soon brought about regular respirations.

II. *Barnes's Dilators*.—These can always be employed with facility where two fingers can pass into the os; and are susceptible, in favorable cases, of earlier use. They are, perhaps, more widely useful than the douche, and are applicable in cases of hemorrhage, jactitation, and insubordination, where the douche cannot be used. They are more certain, and can be relied on beyond any other measure to rapidly dilate the cervix, and allow the confident anticipation of a very rapid operative delivery within a few hours. They combine facility of introduction, facility of retention, hydrostatic pressure, application of heat or cold, compatibility with frequent vaginal examinations, with comparative safety against internal uterine hemorrhage.

They are liable to be drawn, in exceptional cases, into the uterus which has not lost its spheroidal form; to rupture the membranes too early; and possibly to induce a change in the child's position. The head may, however, be so forcibly pressed against the rigid os as to prevent their introduction. They may be expelled at once when the os is well down, and directed forward, and when they can only be introduced along the posterior cervical wall. It has occurred to me that in cases where the funis has been replaced in utero while well pulsating, and a rigid cervix or other conditions

interfere with delivery, these dilators, well distended, offer the best guarantee against a reproduction of the prolapse, while facilitating the prompt delivery.

It is probable that their use will always supersede that of sponge or other tents in midwifery, except in very rare contingencies, and greatly diminish the necessity for manual dilatation, which is always liable to be abused in inexperienced hands.

It is probable that the hosts of men who delight to attach their names to a serviceable invention, will yet so improve these dilators as to do away with some inconveniences in their introduction, and applicability to variations in the character of the cervix and the presentation, and render them less likely to rupture and wear out.

The finger of an India-rubber glove will serve an excellent purpose in cases of rigidity, where the smallest-sized dilator cannot be introduced; and, as I have shown in this work, is well adapted to bad cases of flooding in miscarriage, where the uterus is yet small in size and rigid, and especially where it is desirable to dilate the cervix, and withdraw any retained part of the ovum.

Some cases have come under my observation in which, while these instruments will rapidly dilate the cervix, the latter contracts promptly, and even immediately after their withdrawal, almost as though it were made of India-rubber. This state of things has embarrassed me in cases where a prompt forceps delivery was imperatively demanded, and is also represented in Case 71, where no operation was indicated or demanded.

It follows, therefore, that the cervix uteri may represent types of rigidity, differing in degree, and varying in the degrees of thickness of the cervix. It may offer a rigidity which is only apparent, and can be at once dilated by the hand—a dilatable, but not dilated or dilating os. And on the other hand the os may be dilatable, but may spring back when the dilating force is withdrawn.

CASE 70.—*Induction of premature labor with Barnes's dilators.*

The patient was a multipara, who in a second pregnancy had suffered from eclampsia. The urine, however, was but little affected, and diligent search had only rarely shown any albumen, and a cast or two. She became hemiplegic, and had choreic convulsions, with tendencies to cerebral congestions. She had been seen by Drs. Van Buren, Clark, Swift, and Echeverria, and, I believe, by others. Pregnant again, my opinion was asked, and given in favor of delivery at any time in which the mother's life became seriously compromised; but if care and treatment prevented this risk, then my opinion was decidedly in favor of bringing on labor at the eighth month, as I thought that she should in any event be spared the dangers and delays of the last month of pregnancy. Accordingly, this unfortunate woman went on with her pregnancy, and at the eighth month I commenced the induction of labor with Barnes's dilators on the 9th of June, 1863—*being, in my belief, the first case in which they have been employed for the induction of labor in this country.* At 9 A. M., the os was high up, and reached with some difficulty. The finger, when forced through, could detect a cranial presentation. Cervix uteri thick and long. Managed to introduce the smallest-sized dilator. 12 M.—The first is nearly in the vagina; relaxation of the cervix and vagina has commenced. Introduced the second size, into which I could inject three syringefuls of water. 2 P. M.—This was slipping in the vagina. Pains have commenced; some show. 4 P. M.—No pains. Reintroduced the second size, and injected it with six syringefuls of water. 7 P. M.—Dilator found in the vagina, where it had probably been forced by some strong expulsive pains which had occurred at five o'clock, and had suddenly ceased. Os uteri now nearly fully dilated, though not absolutely dilatable. Slight pains recognized by abdominal manipulation, and by the

finger pressed against the bag of waters, which was quite thin, would become tense with pain, and was commencing to protrude within the cervix uteri. Vagina relaxed and moist. I was fearful of rupturing the membranes if I reintroduced the dilator within the cervix. Accordingly I introduced the largest size, fully dilated, within the vagina, and reinjected it about 10 P. M., when I left it in all night, during which she had some pains and some sleep.

June 10th, 5 A. M.—Os fully dilated, vagina relaxed, membranes now protruding; head not advanced; foetal heart beating. I then introduced one-half of a No. 9 flexible catheter, with a string attached, and left it in situ between the uterus and membranes. In the course of the day the labor terminated naturally. The child was living, and has done well. The mother is living, and has improved in health.

Remarks.—The principle which I advocated in this case, of allowing the pregnancy to go on in the interest of the child until fully viable, and of then bringing on labor in the interest of the mother, applies to a vast range of cases where diseases of the kidneys, heart and blood-vessels, lungs and respiratory apparatus, nervous system, or complications, as from the presence of abdominal tumors, motive a consultation for danger to mother and child. It applies also to cases of successive occurrences of fatty placentæ in different pregnancies.

CASE 71.—Rigidity of os uteri treated by Barnes's dilators and douche; contraction of cervix after withdrawal of the dilator.—Dr. Mead, House Surgeon.

Ellen Dealy; æt. 35 (?); primipara; physical signs of emphysema present and occasioning much distress. Labor-pains commenced May 29th, at 8 A. M.; but she did not go to the lying-in ward of Bellevue until May 30th, at 12 M.; when she stated that she had not felt any foetal movement for a week. Foetal heart inaudible. Os uteri admits the index-finger, and is rigid and undilatable. Dr. Elliot saw

the patient at 4 P. M. when the os was low down in the pelvic cavity, about the size of half a dollar, and still rigid. The liquor amnii was in excess, and the presenting part not recognizable. Dr. Elliot decided to rupture the membranes, ascertain the presentation and position, and then, if necessary, dilate with the douche or Barnes's dilators. When the waters were evacuated, the head of a dead child was found to present, with the occiput to the right sacro-iliac synchondrosis. The largest-sized Barnes's dilator was introduced, and twenty measured ounces of warm water forced in, Dr. Studley and others being present. In five minutes the os was fully dilated, but when the water was allowed to escape, and the dilator withdrawn, the os instantly contracted down to two and a half inches in diameter. A warm douche was then directed, and given at 5 P. M., with the effect of causing full dilatation in fifteen minutes; and the woman was delivered of a still-born putrid child at 6.30 P. M. The placenta came away in fifteen minutes, and was shown under the microscope to be fatty.

In one of my cases of puerperal eclampsia, a similar fact was observed.

Barnes's dilators are so valuable, that we cannot escape the conviction that no man is fully prepared for the contingencies which attend the induction of labor and rapid dilatation of the cervix uteri, who is unprovided with this, or a similar instrument. The dilatation of the cervix, by fluid pressure applied from below, has taken rank in midwifery as a fixed and trusty procedure, based on the closest imitation of Nature's laws; and the names of Arnot, Keiller, Jardine Murray, the younger Storer, St. Tarnier, and Barnes, are indissolubly connected therewith. But the great merit of making the method popular and practicable rests with Dr. Barnes, of London, who has the same relations to this procedure that Morton bears to the introduction of ether as an anæsthetic. It is greatly to the credit of the learned and indefatigable

Dr. Barnes, that he presents both his claims and the method so frankly, modestly, and completely.

III. *Sponge, or other tents*, are valuable where the dilators cannot be procured and in rare cases where they cannot be introduced and there are objections to the douche.

The choice of means for dilating the cervix will vary with the degree of dilatation, and the facility with which the os uteri can be reached. In extreme cases of pelvic deformity, this latter contingency may be very important. We may, however, find the cervix well down in the pelvis, the os quite dilated, the head distinctly recognizable, and susceptible of ballottement through the unruptured membranes. Such conditions are not infrequent in multiparæ toward the end of gestation, and furnish the greatest facilities for the manœuvres required. We may find great varieties of direction of the cervix, and great differences in the calibre; and we may sometimes find the cervix so dilated as to resemble the amniotic pouch, and yet the small dimpled os uteri scarcely susceptible of recognition.

Two such cases have occurred to me. The first fell to my care in the Dublin Lying-in Hospital. I encouraged the woman to bear down strongly, and anticipated a speedy delivery. This not occurring, and Dr. Shekleton visiting the ward, I suggested to him the advisability of rupturing the membranes, when he recognized the peculiarities of the case, and called my attention to a little dimple which represented the os uteri. In that case the first commencement of dilatation was brought about by the introduction of the end of a small catheter. The second case occurred in my private practice, some years ago. My first impression, on making an examination, was that of gratification at the advance of the labor, but on searching for the rim of the cervix, I recognized the character of the case. The first dilatation of this os uteri could only be effected by the smallest-sized sponge-tent that we use in a contracted and unimpregnated cervix. Fearing that

this little tent might slip within the uterine cavity, I attached it by a string to a body bandage. The rest of the labor was natural, after dilatation had been effected. The patient was a multipara who had been long under treatment for chronic metritis, before this pregnancy, by Henry Bennett, and others.

In a recent number of the *Richmond Medical Journal*, Dr. Nott, of Mobile, gives the formula for a paste which he smears over sponge-tents before their introduction and which neutralizes their fœtor. The same end is attained by Mason, of this city (23d Street and 8th Avenue), by the addition of carbolic acid to those which he prepares. Dr. Emmett has introduced them within the unimpregnated uterus in an India-rubber covering which allows the injection of water for their prompt dilatation, while it expands *pari passu* with the tent. It is also certain that there is no advantage in coating the tents with wax; and that their action is thus delayed.

IV. *Manual dilatation* is serviceable where there coexists dilatability without dilatation—a fact only to be appreciated by trial.

It is also to be resorted to in cases where the douche cannot be employed, and there are no tents or dilators; and the records of obstetric literature present numerous examples of rapid and successful dilatation of an undilated and rigid os uteri by this means alone. Still, with the exception of these cases, in which there is dilatability without dilatation, manual dilatation should rarely be resorted to, on account of the superiority of other methods, and of the greater liability of bruising the cervix by this method in difficult cases.

It is a good habit to appreciate in each case of labor whether the cervix be dilatable or not, as was practised in the case of Mary Wilson; for in many the perpetual prayer of women for assistance may really be answered in a simple and very effectual manner by this manœuvre; while the non-recognition of this fact has most undoubtedly cost the lives of very many mothers and children by postponing the time for an elective and safe operation.

How many cases have I seen of delayed labor to which I have been called, where the apparently rigid cervix could be stripped over the child's head in an instant, and admit either of a prompt spontaneous termination of the labor, or of immediate delivery by art! In some the delay made the difference between life and death.

CASE 72.—*Rigid os; douche; manual dilatation; forceps to head transversely placed in pelvic excavation.*

McCudder; aged 32; first pregnancy; fell in labor August 26, 1858, in Bellevue Hospital; Dr. E. W. Lambert, House Physician, and Dr. Foster Swift, Senior Assistant; presentation R. O. P.

This patient was seen at 6 A. M. on the 26th, when the os uteri was as large as a dollar; waters, according to her account, having been dribbling away for several days. Having remained in this condition for twelve hours, gr. xv. of ipecac. were given, and the warm douche applied by the house physician. Five hours after, no material progress having been made, the douche was repeated, and chloroform given.

August 27th, 2 P. M.—The patient was reported to me as one on whom the douche had made no impression, though the stream had been steadily thrown against and within the os uteri. On examination I found the os of the size and apparent rigidity described; but on introducing my fingers, and forcibly dilating it, full dilatation was almost immediately effected.

8 P. M.—I was sent for by Dr. Swift, as the woman was showing symptoms of decided exhaustion, vagina becoming hot, and the head having simply so altered its position as to present its sagittal suture transversely with posterior fontanelle to right ilium. The foetal heart seemed to me inaudible. I applied my forceps, with one blade over the left temple of the child, and the other behind the right ear, and

rotating the occiput under the pubis, delivered a dead male child, weighing six and a half pounds, having the cord twice around the neck. Woman did well.

Dr. Benjamin Lee, when House Physician of Bellevue Hospital, asked my advice regarding a rigid os, where he had been using the douche ineffectually, as he thought. On separating it with my fingers, I immediately stripped the cervix over the head of the child, without difficulty.

Dr. John C. Draper, formerly House Physician, sent for me in the night to a young primipara, in labor illegitimately, in whom the os had resisted the douche and belladonna ointment. It was described to me as hard, dry, and unyielding as steel. And so, indeed, did it appear to me; but, on introducing my fingers within its rim, in an instant I procured full and complete dilatation, when Dr. Draper successfully delivered her with forceps. Mother and child made a good recovery.

Methods for inducing uterine contractions.—Before deciding on the induction of labor in any case, the question arises as to the influence that we can bring to bear in developing the uterine contractions themselves; and we must admit the uncertainty of our reply. These cases may all be divided into two great classes: 1. Those in which the danger to mother or child, or both, is so deadly that we would not hesitate to deliver by the hand or by instruments, so soon as the cervix were sufficiently dilatable for the task. 2. Those in which the necessity is not more pressing than in the ordinary conduct of a labor which had fortunately occurred prematurely at the most favorable time.

In the first category of cases, our duty being very plain and clear, we ask only that the os be sufficiently dilatable, and with the douche and Barnes's dilators, we can as a law speak confidently of terminating the labor within a few hours and, perhaps within two. Still we must be prepared for disappointment even in these cases; while in the second

category we may have to dance attendance, to the fatigue and disappointment not only of the patient, but of ourselves, and all concerned.

One of the surest signs of inexperience in these latter cases is the confidence with which a man may speak of the certain results to follow interference within a given time; and those most given to these prophecies are those who have had good luck in an experience of one or two cases.

It is as good a rule to give a guarded prognosis as to time in these as in all cases of labor. No patient regrets that the affair should be over sooner than was anticipated; but the courage and hope which have sustained the laboring woman nobly to the appointed hour, may fail her when this is past; and what can the physician say, except that either something unforeseen (and necessarily untoward) has happened—an alarming fact—or that he was mistaken in an opinion which it was not necessary for him to give? It is better as a rule to say that one cannot tell; but with some very nervous patients the best prognosis as to time is veiled in oracular obscurity, and susceptible of more than one interpretation. “It might,” and “it may,” and “if.” Still, as the old Scotchman said to his son, “Honesty is the best policy; I have tried baith.”

The following case offers a marked example of the difference between procuring full dilatation of the cervix uteri and inducing persistent uterine contractions:

CASE 73.—*Deformed pelvis; premature labor; unusual and marked difficulties in the induction; forceps by Dr. Taylor; vesico-vaginal fistula in a previous labor.*

In the *New York Journal of Medicine*, September, 1858, I have published, in an article on Operative Midwifery, Case 21, the history of this patient's first labor, which I saw in consultation with Dr. H. S. Hewit, and Prof. John T. Metcalfe. In that labor the child presented the breech, and was delivered with the perforator and crotchet. We then

made out the entire brim to be undersized, with apparently $2\frac{3}{4}$ inches of antero-posterior diameter of brim and a sharp promontory. Subsequent examination has satisfied me that the conjugate diameter does not exceed three inches. Premature labor was strongly recommended to the patient after that delivery in the event of subsequent impregnation. This opinion was disregarded, and she sought other advice. After a very long and tedious labor at term, she gave birth, without operative assistance, to a second child, which was still-born. It was reported to me that great moulding of the head occurred in this labor, and a vesico-vaginal fistula, resulting from the long-continued pressure of the head, forced the patient once more to Dr. Hewit for relief, which was most kindly extended. The fistula required a number of operations, performed according to Sim's method, and was at last permanently cured.

Pregnant for a third time, she applied to me, by Dr. Hewit's advice, for admission into Bellevue Hospital, where I determined to bring on the labor at about the end of the seventh month. Her general health was good, vagina perfectly sound, urine normal. As some puerperal fever just then showed itself, I placed her in a separate ward with a special attendant, and requested Dr. Maus R. Vedder, then one of my house physicians, to take charge of her, and carry out the treatment which I directed. Severe illness of one of my children interposed some delay in the management of the case, and forced me to leave town on the day of the delivery, which was accomplished by my colleague, Prof. I. E. Taylor, but the post-mortem of the child was directed by myself.

The following memoranda are those of my friend Dr. Vedder. It is necessary, however, to state, that on Tuesday, October 15, 1861, at about the time fixed for induction of the labor, the patient was ascending a stairway when the membranes ruptured spontaneously, though no very great amount of liquor amnii escaped.

"On making a vaginal examination, the os and cervix

uteri were found soft and slightly dilated, while the vagina was plentifully lubricated with mucus. Labor-like pains occurred at irregular intervals until Wednesday morning.

"On Thursday, 17th, 11.30 P. M., Dr. Elliot ordered a warm uterine douche. The patient being placed on her back, the nates projecting over the edge of the bed, an ordinary gutta-percha enema syringe was used to inject the water. With two fingers introduced into the vagina, I directed the orifice of the pipe directly into the interior of the cervix, and gradually injected about two gallons of warm water. This proceeding appeared to have the desired effect, as uterine contractions took place almost immediately, and the os uteri became softer and more expanded.

"On Friday morning (18th), I ascertained that the pains had occurred during the night at intervals, but had ceased entirely toward morning. An examination per vaginam being made, the os uteri was found almost entirely closed. The douche was repeated and followed by the same effect. The pains ceased during the afternoon, and in the evening a vaginal examination revealed that the os had returned to its former condition.

"*Saturday, 19th, 8.30 A. M.*—The patient slept well, has no pains, and her bowels have moved. Repeated the injection. The os dilated to about the size of a dollar, but uterine contractions did not supervene.

"*Monday, 21st, 8.30 A. M.*—Patient in good condition. Repeated the hot douche, which was again followed by the same results.

"*Tuesday, 22d, 8.30 A. M.*—Patient has not slept well, is irritably nervous and hysterical, and complains of rigors.

"*Wednesday, 23d, 7.30 P. M.*—Patient in good condition. Dr. Elliot found the os slightly dilated, and determined to introduce a large-sized sponge-tent, which was allowed to remain for twelve hours. On removing the tent, the next morning, the os was found fully dilated, though but few uterine contractions had occurred during the night. In short,

both the douche and the sponge-tent dilated the cervix to such an extent as to prepare it fully for labor, but no pains supervening, the relaxation would pass off and the os regain its normal condition. Galvanism was now suggested to excite uterine contractions, and was accordingly used. One pole was applied so as to pass along the spinal column, and the other was placed upon the abdomen and into the vagina alternately. This treatment was repeated several times during the day, occasionally producing uterine contractions, yet without having the desired effect.

"*Friday, 25th, 12 M.*—Being disappointed with the efficacy of the uterine douche, sponge-tent, galvanism, etc., Dr. Elliot prepared a part of an elastic male catheter (No. 8), three and a half inches long, with a string attached to facilitate its removal. He then introduced this catheter anteriorly between the uterus and the membranes, and allowed it to remain for fifteen hours.

"Uterine contractions continue to occur at long intervals until Sunday, 27th, 5 P. M., when strong frequent and labor-like pains supervened, the os uteri was dilatable, and did not oppose any obstacle to the labor.

"At 10 P. M. the os was fully dilated, and the head passed into the excavation.

"Dr. Taylor being sent for during the absence of Dr. Elliot, concluded, both from the deformity of the pelvis, and the strong uterine contractions, as well as the non-advancement of the head, to apply the forceps, which was accordingly done.

"The child was delivered by gentle traction and without difficulty, while the placenta followed almost immediately. The child gasped a few times, and, by placing the ear to its chest, the heart was ascertained to be beating.

"Every effort was made to resuscitate the child, but in vain. Mother recovered perfectly."

Post-mortem appearances twelve hours after delivery.—Male child; weight, six pounds two ounces; length, nineteen

and a half inches; circumference of head, just above the ears, twelve inches. The child was apparently well formed and well nourished; nails distinct and well developed. Trace of forceps on right brow between anterior frontal angle and right ear; trace of the other blade posterior to left ear about half an inch below the tip of mastoid process; head well ossified; frontal suture distinct to frontal superciliary ridge; left side depressed below the right to a marked extent; left fronto-parietal suture somewhat obscured at its lower part by œdema, but for the upper two-thirds the seat of an obvious depression, in breadth corresponding to that of the fore-finger. This depression is formed by the frontal and parietal bones, but the parietal bone is depressed below the margin of the frontal. This parietal bone is also depressed at the parietal suture below the right parietal bone. The caput succedaneum is principally situated at the posterior and superior part of the right parietal bone. Lips blue black; some post-mortem discoloration of cheek and upper lip. On removing the scalp the relative situations of the bone described became more evident, and the depression of the anterior part of the left parietal bone more distinct. On removing the calvarium an amount of fluid blood escaped, from six drachms to an ounce. The brain presented an ordinary amount of vascularity, with no effusion. On removing and slicing the brain no clots nor extravasated blood could be detected. Weight of brain, twelve ounces. Lungs have been inflated, crepitating under pressure. Other viscera appeared to be healthy. Bladder moderately distended with urine.

Remarks.—It thus appears that spontaneous rupture of membranes and escape of some liquor amnii, with labor-pains supervening—dilatation of cervix uteri by douche, as far as is generally necessary for induction of true labor-pains—full dilatation of cervix by sponge-tent, and galvanism, had all failed; when after leaving within the uterus (between that organ and the membranes) three inches and a half of a No. 8 elastic male catheter for *fifteen* hours, sluggish, and reluc-

tant uterine contractions gradually acquired force sufficient to drive the head through the contracted brim, when the labor was terminated by Dr. Taylor.

For a correct appreciation of the case, it is important to understand that after the douche, as after the sponge-tent, the cervix uteri and vagina were sufficiently prepared for the labor, though the uterine contractions persistently refused to obey our summons, and press the head upon the cervix. The preparations were sufficient, but the labor would not be provoked. Descent of the head was not prevented by the deformity, but by the lack of true labor-pains. How often do we see such cases in natural labor among multiparæ, where the os is widely open and pains supervene, while the finger readily touches the head, floating in the liquor amnii, and after all the pains may cease, and the patient's labor not occur for a fortnight! Those cases where there is a continuous drain of liquor amnii through the rent membranes continuing for weeks, without labor, come within the same category. I published a remarkable one in the *New York Medical Press*, for November 4, 1859, where, with the approval of Dr. Barker, I induced labor after the waters had thus steadily dribbled for seven weeks. It is interesting to observe the effects of pressure by the projecting promontory on the foetal head, and to see how the caput succedaneum, the depression, and marks of forceps all agree in determining the character of the presentation. In my experience, the difficulties signalized in this case are entirely exceptional, though, as an exception, it may serve to prove the rule that the induction of premature labor is an excessively simple and certain measure. I regret that my memoranda of the date of the last menstrual period before impregnation are lost.

The following history details the first labor of this patient, and offers an example of the difficulties which may complicate an original pelvic presentation, in a contracted pelvis.

She has since been successfully delivered of a living child of small size; by forceps, in a fourth labor.

CASE 74.—*Deformed pelvis; breech presentation; perforator; convulsions; recovery.*

Mrs. —, a primipara, aged 25, short in stature, but with no apparent deformity, came to full term, and fell in labor on the night of the 12th, under the care of my friend, Dr. H. S. Hewit. At 11 p. m. the membranes had ruptured and the waters escaped. Fœtal heart beating; breech presentation recognized; pains slight. Sent for me at 9 a. m., 13th. Found os fully dilatable; sacrum of child directed to left sacro-iliac synchondrosis. Fœtal heart very audible, with summum of intensity above and to left of umbilicus; maternal passages and pulse good. Pains had been strengthened by ergot. Recognized general pelvic deformity; pubic arch good, but rami of ischia too close. Entire brim under size, with apparently $2\frac{3}{4}$ of antero-posterior diameter and promontory sharp.

The pains continued good all day, as did the fœtal heart and the mother's condition. The child's scrotum was distended and forced down. Its sphincter ani contracted around the finger.

In the evening, after watching the patient for twelve hours, I advised an operation, and stated that the difficulty would be so great that I should require another assistant, as Dr. Hewit was to take charge of the chloroform. Dr. Metcalfe then became associated with us, and I proceeded with a blunt hook to bring down both thighs, and then both arms, which was accomplished without fracture. The head came to the brim with the chin to the left ilium, and no manual efforts were of any avail; nor was there any space for forceps. I then introduced the blunt hook into the mouth, the child being dead, and pressing the crotchet against the occiput, worked till I fractured the jaw at the junction of the left ascending ramus, without any effect. Then introduced the perforator behind the mastoid process of the right side, and made ineffectual efforts with the crotchet. At this stage,

there was room for one blade of the cephalotribe in front of the left sacro-iliac synchondrosis, and I introduced it in the hope that some lucky move would make room for the other; but it was impossible. Accordingly I reintroduced the perforator and crotchet, and pulled till I was temporarily exhausted, though the head had now begun to descend. Dr. Metcalfe succeeded me, and with strong effort withdrew the head. Placenta followed immediately, and uterus contracted well. No hemorrhage. Some symptoms of metritis, which subsequently presented themselves, yielded to a blister dressed with mercurial ointment, and the exhibition of morphia and the veratrum viride.

The patient had *convulsions* of a mild character on the following Tuesday night, in which the tongue was not bitten; and again on Wednesday night, Dr. Hewit being summoned suddenly to her, witnessed a recurrence of the phenomena apparently from fright. Urine drawn with the catheter, and examined by Dr. Gouley, gave evidence of a slight amount of albumen with casts of the uriniferous tubes, and blood-corpuscles.

26th.—Has done well. Premature labor advised hereafter.

The most reliable methods for inducing uterine contractions when premature labor is decided upon, and the pains do not follow dilatation of the cervix, are mechanical; but they are all liable to demand many hours of valuable time.

V. *The introduction of a catheter between the membranes and the uterus* is justifiable whenever all other conditions for delivery are favorable, and where the contractions of the uterus have been wanting, imperfect, or sluggish. Although theoretically a harsh procedure, it does not appear to increase risks of metritis; and is very effectual when left in situ. A renewal of the trials of very flexible materials which have been used in the history of the operation, will probably be advantageous.

Rodenberg recommends the introduction within the cervix of a bougie promptly withdrawn, and frequently re-introduced. He points to fifteen cases, in fourteen of which the children were born alive; and when the youngest of that number had reached the age of two years, seven of them were known to be alive.

Zuydhoek recommends the introduction of a wax bougie, two or three lines in diameter, between the anterior wall of the uterus and the membranes, and leaving it there for a length of time—a method preferred by Dr. Lehman, of Amsterdam.

I generally select a piece of a No. 8 gum-elastic flexible male catheter, and attach a string tightly to the cut end, so as to facilitate its withdrawal in the event of its slipping within the uterus; but this contingency has never occurred in my practice, and on the contrary the instrument has more than once slipped out of the uterus into the vagina, and thus time has been lost.

CASE 75.—Induction of labor with douche, dilators, and catheter.—Two children had been previously delivered after perforation.

Labor induced for deformity of the brim in the Lying-in Asylum, with the assistance of Dr. Sterling, Resident Physician, June 8, 1865. 10½ P. M.—A tepid douche for twenty minutes. 9th, 8 A. M.—Os uteri sensibly dilated. Bowels being constipated, enema ordered, which produced two movements. 9½ A. M.—Second douche. 12¼ P. M.—Os dilatable to nearly the size of a Mexican dollar. Barnes's dilator, No. 2, was introduced and injected until she began to complain of pain. Cranial presentation previously recognized. 2¾ P. M.—Dilator readily removed; cervix still long, well dilatable; membranes distinct and distended. 3¼ P. M.—Largest-sized dilator introduced, and distended fully without complaint. 9 P. M.—Dilator removed by the hand. A

trace of albumen detected in urine drawn with the catheter. There have been pains, which have ceased entirely. They returned under digital examination, and becoming pretty fair, and the membranes commencing to pass well down the cervix, we decided not to introduce the dilator.

10th, 12½ A. M.—The pains have again markedly diminished, but return when the digital examination is made. I then introduced a piece of a No. 8 flexible male catheter between the membranes and the uterus, in front of the right sacro-iliac synchondrosis, and left it there. 6 A. M.—The pains have again subsided; but they had come on with sufficient violence to prevent the patient from sleeping. The catheter was in the vagina, and I replaced it anteriorly. Heretofore the presentation had been recognized as left occipito-anterior. At this visit the convexity of the dorsal curve was recognized by abdominal palpation to have changed to the right side, and the summum of intensity of foetal heart-sounds had also changed. 11½ A. M.—Pains have been moderately good; catheter *in situ*; membranes on a level with the os externum, in the intervals of a pain.

11th, 12½ A. M.—Almost continuous pain; catheter withdrawn, and not replaced. Toward morning some chloroform given in moderate quantities for relief from the force of the pains. 8½ A. M.—Membranes which have touched the floor of the pelvis have been allowed to rupture spontaneously. I aided the entrance of the head through the contracted brim by pressure from above with some success.

11¼ A. M.—Child born with three coils of funis very tightly around its neck, and very feeble. Dr. Sterling's care soon revived it; and the child, a vigorous boy, has since done well, without a single unfavorable symptom, as has the mother.

The following measurements were made immediately after birth. *Conjugate diameter*, three inches and three-eighths. *Placenta*, two and a half pounds in weight, width nine inches, thickness two inches. *Cord*, length forty-two

and a half inches. *Child*, weight nine pounds, length twenty-three inches. *Chest*, twenty-three inches around. *Head*. Bi-mastoid diameter three inches and one-eighth. Bi-parietal three inches and five-sixteenths, measured from a point taken at the temporo-parietal suture in a line with the upper border of the fronto-parietal suture. Occipito-mental fourteen inches and a half in circumference. Sub-occipito bregmatic twelve and three-eighths. Sub-occipito frontal thirteen and a quarter. Largest circumference of head over the parietal bones fourteen and one-eighth of an inch. Her previous children are reported to have been very large.

CASE 76.—*Induction of labor with douche, dilators, and catheter.*

Mrs. —, seen in consultation with Prof. Sayre, October 6, 1862, in consequence of the fact that in the previous pregnancy the child had been delivered after perforation. As she was restless, she was brought under chloroform, when I measured the conjugate diameter with Lumley Earle's instrument, and estimated it at four inches. The transverse seemed to be about equal. The linea ileo-pectinea from the right ilium to the pubis straighter than it should be, and straighter than the other side. Nothing abnormal but a transverse diameter of brim somewhat diminished, and also the oblique diameter from the right acetabulum to the left sacro-iliac synchondrosis. Room enough for an average-sized child to pass at term, especially in a left occipito-anterior position. The foetal heart was beating to the left in correspondence with the dorsal curve, at 120 to the minute. Probabilities of its being a male suggested to the patient. Cervix well-shaped and well-directed. Head presentation recognized by conjoined manipulation. *October 24th.*—Measurements repeated. She had been last unwell February 14, 1861. Quickened July 5th to 10th. Induction of labor decided on for November 28th. First douche 11 P. M.; after which smallest-sized Barnes's dilator introduced.

It soon slipped out, and she slept well during the night. 29th.—Can introduce two fingers in the os. Second douche at 11 A. M., and then introduced the second-sized dilator, and distended it as much as she could bear. 1 P. M.—The dilator slipped out in three-quarters of an hour. Pains have commenced. Os more dilated, not dilatable. Third douche. Membranes passing within the cervix near the os. On the right side of the head, within the membranes, I could touch a hand, which moved rapidly away from the examining finger. Pushed it up as far as possible, and then sought to press the head further in the brim, with the hand over the abdominal wall. Quiet and nourishment. 4 P. M.—Fourth douche. Pains about every fifteen minutes. Piece of No. 8 elastic catheter on the left side, within the cervix. This was expelled by vomiting, and replaced. November 30th, 9 A. M.—Catheter has been expelled. More dilatability. Hand not recognizable. Slept well. Pains every half-hour or so. Largest-sized dilator introduced, and when expelled, in three-quarters of an hour, fifth douche given, and then reintroduced catheter. 4.30 P. M.—Pains very good. Catheter snugly *in situ*. Withdrawn. The pains increased with the greatest force and frequency, giving scarcely a moment's respite. Chloroform begged for and refused. At 11½ P. M. a healthy, lively male child, weighing seven pounds, was born, which did well, as did the mother.

Remarks.—Perhaps this theory, which has occurred to me, may suggest one impediment in the first labor. After that delivery, she had great hardness, swelling, and then fluctuation in the right iliac region. An opening was made there, and a counter-opening became necessary in the vagina. A free discharge took place, some of which resembled honey; and finally, under iodine injections, the sinus closed. Now, it is possible that a small ovarian, or parovarian tumor, may have accidentally diminished the contracted transverse diameter. May not this have become inflamed, and may not its contents have escaped with the results of peri-ovaritis? At

the time when I examined the case, no trace remained of all these serious post-partum conditions but the large scar in the abdomen. Now, while, of course, the history of this previous inflammation lent additional force to the arguments for inducing premature labor, the great question turned, after all, on the accurate measurement of the pelvic diameters; and the decision first to postpone the operation until a late period of pregnancy, and, secondly, of inducing it at all, was based on its result. Still, as I have stated, this woman may yet give birth to living children at term.

VI. *The membranes may be separated with advantage* when the cervix is commencing to dilate satisfactorily, if this does not involve too great a risk of premature rupture; as the early descent of the membranes, in a favorable presentation, facilitates the phenomena of natural labor.

VII. *The electric and galvanic currents* demand further trial, and may yet enable us to dispense with other means of inviting uterine contractions, notwithstanding the discouragements which have so often attended their use.

Still, up to this time, I have had no satisfaction from these agents in the very few cases in which I have employed them for this purpose. And they have failed me in cases of *amenorrhœa*, and as a *galactagogue*. It seems to me that there is too great a tendency in medical journals to parade a few cases in which the menses, or the secretion of milk, followed the use of the current, rather than to examine the question dispassionately, and on a large scale. I have made careful trials, with Kidder's best instrument, on hospital patients observed by the class, without success, and I have used the same instrument very thoroughly and very often in private practice without other satisfaction than that of having made the effort. Even in the cases adduced by the best authorities the number is too few to enable us to feel certain that coincidences are not reported as results.

In a case of amenorrhœa in my wards in the winter of 1866, where the constitution of the patient, and the state of the uterine organs, gave every reason for believing that only a slight impulse was needed to bring on the flow, Kidder's best instrument was used in the most thorough manner, with Hammond's instrument for conveying the current to the cervix uteri, and in every other way, but with no effect. Before the next period the patient reëntered the hospital in the service of my colleague, Prof. Taylor, who examined carefully into the situation, and used the sound, among other methods of exploration, as I had done before. Before the next day the flow had been established without any electric current. Moreover, in some cases of menstrual epilepsy which have given me great anxiety, and when the plethoric character of the patient and the scanty menstrual flow pre-eminently indicated emenagogue remedies, electricity has utterly failed me, though thoroughly applied, at recurring periods, both to the uterus and to other parts of the body.

This experience does not prevent me from still resorting to these agents, and from hoping better results. But with this experience one may question whether a large proportion of the successful results recorded may not have been coincidences, or due to other causes.

In "Vanity Fair" Thackeray has most delicately satirized the liability of our profession to a mistaken appreciation of the effect of our remedies:

Major Dobbin was returning home invalided from India, wretched in mind from the conviction that Amelia was married, when he unexpectedly learned from Jos. Sedley that such was not the case, and he instantly began to mend just as the puzzled doctor had changed his prescription.

"The ship-surgeon congratulated himself on the treatment adopted by him toward his new patient, who had been consigned to ship-board by the Madras practitioner with very small hopes indeed,—for from that day, the very day that he changed the draught, Major Dobbin began to mend."

VIII. *Puncture of the membranes* is to be avoided in all cases where the danger to the mother does not point to this procedure, as may happen in placenta prævia, and over-distension of the abdomen; or where the labor can not be promptly completed.

There are few rules more worthy of being impressed on the mind of the young obstetrician than the desirability of preserving the integrity of the membranes until the cervix uteri is fully dilated or dilatable; and until both the position of the child and its relations to the maternal organs are such as to promise a natural or permit a speedy delivery. So long as the membranes are intact, so long do the relations of the foetus to the mother continue unchanged, and while there may be fatigue and even exhaustion, the maternal tissues are rarely subjected to unnatural pressure, or the child's life endangered by the phenomena of labor. But from the time when the waters are evacuated, all this is changed, and delay in the progress of the labor is an element of danger to both lives. The expert is better fitted to decide on this manœuvre at an early period of the labor, since his clinical tact enables him to exclude the presence of causes of delay which might well exist, and be overlooked by the beginner.

While, however, we occasionally meet with cases in which the waters are spontaneously evacuated, and may continue to dribble for one, two, or even three months, without inducing uterine contractions, and without predisposing the cervix to rigidity during the labor, it is a law that uterine contractions generally supervene upon even the partial escape of the waters; and that their premature discharge is very apt to be followed by a tedious labor, and a rigid os, with increased risk to mother and child.

Still, the danger to foetal life in labor, induced by this method, is not always as great as we might anticipate, since Hoffmann has recorded one hundred and eighty-three cases of labor induced in this manner, with one hundred and three

living children. Yet, to diminish the risk to foetal life, Meissner, of Leipsic, preferred to puncture the membranes with a stiletto at some distance from the os, and allow but a small quantity of the water to escape.

IX. *Medicines* are not specially indicated for the induction of premature labor. Their use is to be formulated on other considerations.

Ergot is too uncertain in cases where uterine contractions have not commenced; when efficient, it increases the risk to the child. As an agent for strengthening *existing* contractions, and rendering them more frequent, its claims are paramount. Still, with the exception of those cases, in which flooding may be apprehended; and those in which the delay can be attributed to no other cause than deficient expulsive force, while the head or breech is yet very high in the pelvis; or of those in which the vagina and perineum are so rigid as to be specially liable to laceration from instruments—in those cases of delayed labor, in short, in which the forceps can readily be used, and the choice lies between them and ergot, my personal preference would be for the forceps; though my long observation of the use of forceps in inexperienced hands would incline me to recommend the use of ergot to the beginner.*

In many cases in which this election has had to be made, ergot has given me the greatest and promptest satisfaction. In others I have administered large doses ineffectually (in one case 5 jss of Squibb's fluid extract of ergot and 3vj of Neergaard's saturated tincture), and have been obliged to deliver with forceps after all. And, again, the ergot has acted delightfully and with great power, but has afterward proved a serious obstacle to the removal of an adherent placenta—a condition which can never be diagnosticated in advance. If

* A very valuable paper on the choice between ergot and forceps, by my colleague, Prof. Fordyce Barker, is to be found in the *Transactions of the New York State Medical Society* for 1858.

the effects of ergot be desired, the doses must be frequently repeated if ineffectual.

The following cases illustrate the risks from reliance on ergot, as well as the compatibility of the most violent and continued uterine contractions induced by this drug, with the continuance of the foetal heart:

CASE 77.—*Tedious labor; ergot; forceps.*

Mary Collin, aged 21, primipara, January, 1861. Duration of labor fifty-six hours. Still-born male child, weighing eight and a half pounds. L. O. P. Dr. Page, House Physician, Bellevue. Eight hours before terminating the delivery I advised ergot (vagina cool and moist, foetal heart beating), as there had been no advance for many hours. Under its use marked progress was made, and at half-past one, as there appeared a good likelihood that the delivery would be terminated without instrumental interference, I decided to wait a few hours longer. At half-past four there was no foetal heart, and the vaginal discharges were offensive, and of an olive green color, while no further advance had been made. The cause of the delay was not clear to me, but it is certain that the vagina was unusually small and relaxed. The forceps being indicated, I delivered, in presence of the house staff, having to perform rotation and extension, and derived great assistance from examining the posterior vaginal wall through the rectum, as the risks of laceration were very great. Fourchette slightly lacerated. Chloroform. Child still-born. Mother did well.

CASE 78.—*Deformed pelvis; ergot; forceps.*

Rose Keenan, aged 22, primipara. Head presentation; first position; duration seventy-two hours; female child; born alive, but did not survive; weight seven pounds eight ounces.

In her childhood this patient dislocated the right femur on the dorsum of the ilium, and reduction was never effected. The true pelvis was unaffected except in the outlet, where the corresponding rami of the pubes and ischium were straighter than natural, and interposed a firm barrier to delivery. Twelve hours before delivery I gave a full dose of ergot, and intended to call during the night to see the result. But I was not called, and did not awaken until morning, when the nurse informed me that the pains had been so continuous and severe as to drive Rosa from her bed, and cause her to roll on the floor in agony. Foetal heart unaffected. No progress. She was in the Lying-in Asylum, and I sent for Drs. Cheesman and Metcalfe, who arrived, and decided to deliver with forceps. I could not introduce the second blade, and Dr. Cheesman carried it successfully to its position by at once placing it behind the right acetabulum. The deformity had prevented me from giving it the accustomed spiral sweep required from the fact that rotation had not been effected. The child was delivered with difficulty alive, but did not survive. This lesson, which I then learned (June 28, 1852), has been of service to me in a number of cases since that time. No chloroform given. Mother did well.

CHAPTER VII.

EFFECT OF THE TONIC CIRCULAR CONTRACTION OF A BAND OF UTERINE MUSCULAR FIBRES ON LABOR.—BROW AND FACE PRESENTATIONS.—RUPTURE OF UTERUS.

Effect of the tonic circular contraction of a band of uterine muscular fibres on labor.—*Case*: Brow presentation; chloroform, forceps, version, the perforator, crotchet, and craniotomy forceps having failed to overcome this obstacle, the patient was delivered with the cephalotribe.—*Case*: Brow and face presentation; powerless labor with circular band of contracted uterine fibres; chloroform; lever; forceps; partial version; perforator.—*Case*: Contracted conjugate; tonic circular contraction of uterine fibres; failure of forceps, twice applied after an interval of three hours; chloroform; impossibility of version; craniotomy.—*Case*: Forceps; tendinous band in vagina; peritonitis.—Remarks on brow and face presentations.—*Case*: Forehead presentation converted by conjoined manipulation into that of the vertex.—*Case*: Rupture of uterus; presentation of brow, hand, and funis; delivery by version and crotchet; recovery of mother.—*Case*: Rupture of uterus; version; brow presentation; anterior uterine obliquity.—*Case*: Rupture of uterus; patient died before delivery.—Further remarks on brow presentations.—*Case*: Right mento-iliac presentation; death of child, and then craniotomy.—*Case*: Shoulder and arm presentation; cephalic version by external manipulation, aided by vectis and forceps, ineffectual to flex the head; podalic version and perforator.—Management of frank face presentations.—*Case*: Locked face presentation; effect of manipulation; forceps; perforator.—Anecdote of face presentation.—Chin posteriorly.—*Case*: Face presentation; chin to right sacro-iliac synchondrosis; rotation of chin to pubes with forceps.—Further illustrations of the uses of the hand in facilitating labor.—*Case*: Twins in a pelvis with conjugate of three and a half inches; risk of locking of heads prevented by manipulation.—Benj. Pugh's recommendations in the delivery of the head in breech presentations.

WHILE, as a law, if the child be properly proportioned to a normal pelvis, and properly presented, delay in the labor will generally depend upon inefficient uterine contractions,

or rigidity of the cervix uteri or soft parts, there are occasional examples of delayed labor from tonic contractions of a band of the uterine muscular fibres themselves. An irregular tetanic uterine cramp of certain fibres, which may not interfere with the due recurrence of the pains, but which opposes an unyielding and irresistible barrier to their effects on the advance of the child. It is probable that many of these cases are not appreciated, and that they are more frequent than is generally supposed. The following histories offer illustrations of the difficulties which result in practice.

CASE 79. — *Brow presentation; forceps and version failed in consequence of the powerful unyielding contraction of a circular band of uterine muscular fibres; perforator, crotchet, and craniotomy forceps having also failed, the patient was finally delivered with the cephalotribe; chloroform.*

Mrs. — fell in labor with her fourth child in the night of the 6th of March, 1862, under the care of Drs. Bishop and Case. She was robust and well built, but the antero-posterior diameter of the brim was somewhat undersized, and her previous labors had been slow on this account, but had terminated successfully both to mother and child without interference. Dr. Case informed me, when he came for me, that Dr. Bishop had failed to deliver either by version or forceps, and being thoroughly acquainted with his great ability in obstetric operations, I took my cephalotribe with the other instruments. By the time of my arrival, March 8th, the waters had been discharged for more than twelve hours. The brow presented, with chin directed to the right sacro-iliac synchondrosis; os fully dilated; child evidently full size. No advance had been made through the brim, nor was there any arrest by any portion of the pelvic brim; on the contrary, flexion could be very readily brought about, and the presentation converted into that of the vertex. When this had been accomplished, the posterior fontanelle was di-

rected to the middle of the left ilium, and my forceps were readily applied by passing the first blade in front of the left sac-il. syn., and carrying the other directly to its place behind the right acetabulum. But my strongest tractions failed to do more than reproduce the brow presentation. A repetition of the manœuvre had the same effect. In short, the head would turn as it were on a pivot, but not advance in its totality. One blade used powerfully as a vectis accomplished nothing. It was evident that neither Dr. B. nor I could succeed in this way. Proceeding to turn, I then found exactly what Dr. B. had described, viz., that the arrest was due to a circular uterine band, tetanically contracted a little below the shoulders of the child. Thus the knees were above this circular constriction on the right side of the uterus, and I toiled vainly without being able either to bring one down, or to push a leg by pressure from above through the right side of the uterine wall. All efforts at version by external manipulation alone, or conjoined with the hand in the vagina, failed also, when I recommended craniotomy. Before doing so, however, Dr. Bishop again renewed his efforts, and succeeded in bringing the left foot to the brim of the pelvis, from which place we could advance it no further nor push up the head.

It is important to mention that during the operations of Dr. Bishop before my arrival, chloroform had been given, and that during all these efforts Dr. Case kept the patient as profoundly under its influence as possible, without in any way relaxing the tonic spasm of the fibres referred to.

Careful exploration now enabled us to reach a loop of pulseless funis, and thus all objections to craniotomy being removed, I opened the head, and broke up the brain. Both the crotchet and the craniotomy forceps broke away piece after piece of the well-ossified head without advance. Under these circumstances, with the full approbation of the gentlemen present, I took the cephalotribe (Scanzoni's) and without any difficulty locked it, and crushed through one diame-

ter. Still my tractions did not avail, and it was thought better that it should be reapplied in an opposite diameter, which was again readily effected. Having again crushed through the foetal skull, by the unyielding grasp of this powerful tractor, I withdrew the head and overcame the obstacle. The child was a male, and of large size. Leaving the placenta to the management of Dr. Bishop, I was surprised to be called again to the bedside, to notice the curious way in which the constriction described had reproduced itself, or rather, perhaps, had steadily advanced with the altered uterine bulk, and now retained the placenta in an imperfect hour-glass contraction. This, however, did not make the removal of the after-birth (which was not adherent) an operation of difficulty, though it necessitated the introduction of the whole hand. In so doing the brim of the pelvis and lumbar vertebræ were carefully explored.

Without the aid afforded by this powerful yet thoroughly manageable cephalotribe, I do not know how long it would have taken to overcome the singularly strong and tenacious grasp of this tonic uterine spasm.

Mrs. — recovered perfectly.

CASE 80.—*Brow and face presentation ; powerless labor with band of circular contracted uterine fibres ; lever ; forceps ; partial version ; perforator.—Lying-in Asylum.—Dr. Sterling, Resident Physician.*

Mary Mack ; second pregnancy ; twenty-seven years old ; fell in labor on Friday night, December 5, 1862. There had been some difficulty in her first labor. The doctor recognized a vertex presentation. Pains feeble and unsatisfactory, and her condition so feeble as to require stimulants. I was called to her on the 7th at noon. At that time she was weak, listless, and much fatigued, with no labor-pains of value. Foetal heart feeble, and heard with some difficulty on the left side. Vaginal examination showed that the membranes were

ruptured, and that there was much admixture of meconium with the liquor amnii, which latter seemed to have nearly all escaped. The anterior fontanelle could be reached high up on the left side near the acetabulum. The brow was the most depending part, but the nose, mouth and chin could be felt, the latter being directed toward the right sacro-iliac synchondrosis. The presenting parts were just within the brim, and readily movable; I therefore determined to endeavor to bring down the posterior fontanelle. This was effected by the aid of one blade of the forceps, used as a lever, but when the instrument was removed the brow and face tended to resume their original position. This led to an exploration with the object of determining whether an arm or other presenting part prevented the chin from remaining flexed. No such obstacles existed. The funis, however, was then distinctly reached within the cervix uteri, not prolapsed, not recognizably pressed upon, but the pulsations were feeble, and by the watch amounted to 62 in the minute. It becoming therefore imperative that the labor should be promptly terminated, I explored still further, and recognized that the promontory was unduly sharp, and more projecting than normal, though no diameter in the brim or elsewhere offered any impediment to the labor. Nor, indeed, could the head be said to have yet engaged in the brim. Further up there existed a band of circular uterine fibres, unduly and tonically contracted, the contraction not bearing any relation to the degree of contraction in the other uterine fibres. Here seems to me to have been the key to the position; for, as I have seen in similar cases, the circular constriction prevents alike the weight of the child from aiding its descent after the waters are evacuated, and prevents the uterine contractions from being regularly transmitted through the spinal column to the foetal head; thus such result being prevented, the long arm of the lever, or that passing from the plane of the spine to the frontal bone, is no longer pressed upward, flexion of the chin on the breast no longer follows, and the head, swinging

at the brim of the pelvis, is left free to the other influences which, in such a state of things, would invite descent of the forehead, just as would happen if a still-born child were held up by its heels after birth.

This state of things—the peculiar character of the labor, and the feeble funis-beats—called for prompt relief. Having then reapplied one blade of the forceps, and again brought about and maintained flexion of the chin on the breast, I applied both blades and locked them. The instrument was thus readily applied above the brim, in the oblique diameter, running from the left sac.-il. syn. to the right acetabulum. When tractions were forcibly made, however, the head pivoted again, so as to resume its original position. For this I was quite prepared, as I had met the same difficulty before in just such a case, and making no further infructuous efforts I withdrew the instrument, and attempted version. No great difficulty was experienced in bringing down both feet, one to the vulva, and one just within. But the difficulty was, of course, to come, viz., to push up the head through the circular constriction. Before proceeding to that manœuvre I felt again for the funis, which had not prolapsed, and found it pulseless. This fact being also recognized by Dr. Sterling, obviated the necessity for continuing an operation which could not benefit the child, and so, having pushed up the feet, and requested Dr. S. to maintain the head fixed at the pelvic brim by pressure through the abdominal wall, I perforated the foetal skull with Blot's instrument, and with strong and somewhat continued efforts withdrew the child by the aid of Churchill's crotchet. After the head was withdrawn, time was allowed for the uterus to contract and aid in expelling the body; but it remained sluggish, and after some time the placenta was withdrawn from its usual site—hanging over the anterior cervical lip. Contraction was maintained for some time by the hand before the binder was applied, and by the aid of ergot and brandy there was no hemorrhage, and the patient did well. Chloroform.

CASE 81.—*Contracted conjugate diameter ; tonic contraction of uterine fibres circularly above the cervix ; exhaustion of mother ; failure of forceps, twice applied, after an interval of three hours ; impossibility of version ; craniotomy ; recovery of mother.*—*Bellevue Hospital.*—*Dr. Raphael, House Surgeon.*

Mary Reynolds ; single ; aged 28 ; Irish. Menstruated last in September, 1862. Taken with labor-pains at 9 P. M., June 28, 1863, which scarcely allowed her to sleep during the night ; and by 11 A. M., June 29th, the os was fully dilated, and the presentation easily ascertained to be L. O. A. The membranes ruptured at about this time, and the pains increased in severity and duration through the day, without, however, influencing the progress of the child. 3 P. M.—Fœtal heart beating distinctly. 5 P. M.—Patient shows evident signs of exhaustion from the severity of the pains, which have continued all day, with scarcely an intermission ; and as she had not slept any during the day, and scarcely any during the previous night, she was kept under the influence of chloroform for two hours, when she awoke and expressed herself as much refreshed. At 8 P. M. the pains set in again with full force, the woman at the same time bearing down with all her power, without, however, doing more than wedging the head into the brim of the pelvis. At 9 P. M. Dr. Elliot examined the patient again, and found that the head had escaped pretty well through the cervix uteri, but that above the head a band of tonically contracted circular fibres prevented the advance of the child. In addition to this he diagnosticated that the antero-posterior diameter of brim was contracted to $3\frac{3}{4}$ inches. Members of the house-staff were invited to feel the circular contraction of the uterus, and distinctly recognized it. Dr. E. then applied his forceps, the application of which was difficult, but thorough tractive efforts failed to advance the head. Version was rendered impossible by the condition of the uterus. As the general

condition of the patient was still good, Dr. E. decided to wait three hours longer. Pulse 85. Parts still moist and of good temperature. Foetal heart beating. *June 30th*, 1 A. M. —Condition of the patient has materially changed. She appears to be much exhausted; is restless and irritable. Parts are now hot and dry. Pulse 100. Foetal heart scarcely audible. Not the slightest advance of the head. Dr. Elliot again applied forceps, and made a thorough but unsuccessful effort to advance the head. He then performed craniotomy and delivered the head with some difficulty. The passage of the child's body was comparatively easy. Child estimated to have weighed (with the brain) about 9 pounds. Forty minutes afterward the placenta came away with but slight hemorrhage. *July 1st*, 8 A. M.—Patient slept some five hours, and feels comfortable. Looks very much debilitated, and pale. With stimulants and nourishing diet, she made a slow but good recovery, and left the hospital on the 18th of July.

Remarks.—In this case I was obliged to perform craniotomy while yet the foetal heart was beating—the saddest and the most melancholy duty that can fall to the lot of an obstetrician; very rarely, indeed, if ever necessary, but as I believe unqualifiedly justified in this case by the record, and heartily approved by all present. To have waited longer would have perilled the mother's life too greatly, not only on account of the condition to which she had been reduced, but on account of the tendencies to fever existing in the hospital. Still, notwithstanding that it was done for the best after careful consultation, and notwithstanding that I have been personally responsible for cases in which a similar treatment might have been as beneficial to the mother, I do not think I can ever bring myself again to the performance of so horrible a task.

CASE 82.—*Forceps; peritonitis; tendinous band in vagina.*

Dr. W. W. Jones sent for me to see this patient, and has kindly written the following history of the case:

"Mrs. E. C——; 23 years of age; primipara; was taken in labor on the morning of November 30, 1859. During the day the pains were slight, but in the evening they became strong and regular. The head presented in the left occipito-anterior position. At 12 P. M. the os uteri was fully dilated, the membranes ruptured, and the head had descended nearly to the perineum. After this, though the pains were vigorous, there was no further advance. On searching for the cause of the delay, a firm, tendinous band was found, stretching across the upper part of the vagina, on the right side, which resisted any further advance, though the head was forced strongly against it with each pain. After some hours' delay, a vein was opened and a moderate amount of blood taken. *December 1st*, 10 A. M.—The head remaining in the same position. Dr. Elliot saw the patient. Chloroform was given at once, and Dr. E. proceeded to deliver by the forceps. The blades were applied with great facility, but, though powerful traction was made, the head could not be moved. Dr. E. then withdrew the instrument, and reapplying it in a different position, rotated the head, and effected the delivery. The child was born asphyxiated, but by plunging it alternately into warm and cold water, and by artificial respiration, it was perfectly restored. Notwithstanding the force required in effecting the delivery, there was no abrasion, and hardly the slightest mark on the child's head or face. Immediately after the delivery a full dose of ergot was given, and the uterus contracted firmly. *December 3d*.—To-day was taken with symptoms of peritonitis. Ten grains of the mild chloride with one-eighth of a grain of the sulphate of morphia were given, followed by castor-oil, hot fomentations applied to abdomen, and, as soon as the bowels were moved, she was put on ten drops of Magendie's sol. sulph. morph. every two hours, so as to produce narcotism—beef-tea given freely.

"This was continued until December 5th, 10 A. M., when it was found that though the pain was relieved, and the respiration very much reduced below the natural frequency, the

pulse had risen to 160 beats per minute. She was then put on tinct. verat. vir. three drops, gradually increased to nine drops every three hours. This rapidly reduced the pulse, bringing it down in twelve hours below 100, and in twenty-four hours below 60. As the effect of the morphine subsided, the pain returned, and it was found necessary to alternate the remedies. She was also early in the disease put on the use of stimulants. *December 8th.*—Patient materially improved, and on the 12th convalescent.”

Remarks on Brow and Face Presentations.—Cases 79 and 80 offer examples of a comparatively rare cause of brow presentation, while they illustrate both the facility with which the head can be flexed by the hand under these circumstances, and of the futility of the effort to secure a permanent result, as the long arm of the lever falls so soon as the hand is withdrawn. In cases, however, in which brow or face presentations occur from other causes, such manipulations may often result in a successful and permanent conversion of the presentation.

CASE 83.—Forehead presentation converted by conjoined manipulation into that of the vertex.—Dr. Francis Delafield, House Physician.

Mary Madden, aged 28, married, primipara. Labor commenced in the lying-in wards of Bellevue, October 23, 1863, 9 P. M. Membranes ruptured 1 P. M. October 24th, at 3 P. M., Dr. Elliot saw the case and recognized a forehead presentation, the chin pointing toward the left sacro-iliac synchondrosis. The os uteri was soft and well dilated; the child's head had just engaged in the superior strait. The uterine contractions were feeble, and the foetal heart distinctly audible. The patient was placed under the influence of chloroform. Dr. Elliot, then introducing his right hand into the vagina and with his left pushing down the occiput through the abdominal wall, succeeded in flexing the head and con-

verting the presentation into a right occipito-transverse position. After the operation the foetal heart could be distinctly heard in the right iliac region. At 5.15 P. M. the head was in the same position, partially engaged in the superior strait, and a little more flexed. At 7.20 P. M. the head was fairly engaged in the superior strait, strongly flexed, and the occiput had commenced to rotate toward the symphysis pubis. The uterine contractions were now of considerable force, and at 9 P. M. the occiput had completely rotated under the symphysis, and the child was born. There was a slight delay between the birth of the head and that of the shoulders. The child respired a few times, and the heart continued to beat for three-quarters of an hour, at the end of which time the child was dead. All the usual methods for restoring animation, hot and cold water, artificial respiration, etc., were continued until death, without effect. The placenta came away at 10 P. M. Child female, weight seven pounds eleven ounces. Mother did well.

Autopsy of Child seventeen Hours after Death.—Weather cold. Cause of death not evident, though every organ of the body was examined with care. There was some congestion of the brain and liver, but not such as could be pronounced a cause of death. No extravasation. Lungs partially inflated, and presenting neither ecchymoses nor liquor amnii, nor evidences of ante-partum respiration. Heart and vessels normal. Peritoneum healthy. It was interesting to observe on the posterior wall of the uterus the evidence of congestion of vessels parallel to each other, and running downward obliquely on either side from a line drawn longitudinally, as it were, along the raphe of the uterus. The broad ligaments were also markedly congested, and the fundus of the uterus, instead of being flat, was markedly convex.

Doubtless the death of the child may have been occasioned by pressure on the cord during the interval of the time between the birth of the head and the shoulders, mentioned by Dr. Delafield. Still there were no satisfactory

pathological evidences of such a mode of death. I confess to an inability to distinguish in these neonati such congestion of the brain as may be recognized as a cause of death, unless some extravasation can also be found. I did anticipate that the manipulation described might have induced such premature respiratory efforts as are now well known to be a cause of foetal death, but a careful examination proved the contrary. Whether this case had passed on with the forehead as the presenting part, or had been converted into that of a face; in either event, with the chin to the left sacro-iliac synchondrosis in a primipara of twenty-eight, the prospects were far from satisfactory.

In my experience brow presentations have proved very dangerous to foetal life, unless the child, or the child's head, were small in comparison with the mother's pelvis.

Dr. Geo. A. Peters saw an interesting case in my practice where the brow came down more than once after it had been returned by the hand, when after again producing flexion I delivered an occipito-posterior presentation with forceps, and mother and child did well. In a previous labor of this patient I had turned a second twin with great facility by external manipulation alone.

In two cases of ruptured uterus under my observation, the brow presented, though I do not attribute the result to this fact alone, as in one there was marked anterior uterine obliquity, and in the other the tips of the fingers of the hand had been felt by the head, while there was no microscopic examination made of the uterine fibres themselves. One of these was rendered remarkable by the recovery of the mother.

CASE 84.—*Rupture of uterus; presentation of brow, hand, and funis; delivery by version and the crotchet; RECOVERY of mother.*

On Thursday, November 25, 1860, I was called by Dr. Slevin to see Mrs. McDonald, in labor with her second child.

The first labor had been severe, but had terminated naturally, and the child was living. The present one had continued for eighteen hours, when the patient complained of a sharp, agonizing pain in the left iliac region, and no more uterine contractions took place. Before this event Dr. Slevin had recognized the presentation of the brow, and the tips of the fingers of one hand, but no effort had been made at any obstetric operation, nor had any oxytocic preparation been given. Subsequently to the occurrence of the sharp pain referred to, the presenting parts had receded, and Dr. Slevin had diagnosticated rupture of the uterus. When I saw her she was very weak, unwilling to stir, or permit pressure over the seat of pain, and vomiting a clear green fluid. Pulse 130 and feeble. On vaginal examination I recognized the brow above the plane of the superior strait, the fingers of the left hand by the side of the head, and a loop of *pulseless* funis. Within the cervix, to the left, was a longitudinal fissure which did not involve the entire thickness of the cervix. We decided on version, and after giving the woman some stimulus, and getting her in position, with the hips over the edge of the bed, I proceeded to perform that operation—no anæsthetic being given on account of the collapsed condition of the patient. The dorsum of the child being next the abdomen of the mother, I passed my right hand gently along the posterior uterine wall, and disregarding the right hand, which was on a level with the foetal face, the right foot was soon reached, and after drawing that without the vulva, the other was readily disengaged, and the arms gave no trouble. Notwithstanding all my care, however, extension of the head took place, and the chin became firmly lodged against the left ilium, nearly on a line with the linea ileo-pectinea. Manual efforts having failed to complete the delivery, and the child being dead, I passed the blunt hook within the mouth, and pressing the perforator strongly against the occipital bone, fractured the jaw-bone without dislodging the head, and then having perforated the occipital bone, and

evacuated the brain, the delivery was terminated with the crotchet. My hand being now introduced within the vagina, enabled me distinctly to recognize that the longitudinal fissure referred to (as recognized in the cervix before delivery) extended through the left side of the uterus, and on passing two fingers through the rupture into the abdominal cavity, I touched a loop of intestine, and the peritoneal coat of the abdominal wall. The other hand placed over the left iliac region enabled me distinctly to appreciate that nothing but the abdominal wall was interposed between them.

On removing my hand I withdrew the placenta without difficulty, nor did any hemorrhage of moment take place. Contraction of the uterus followed, and was aided by ʒij . of the saturated tincture of ergot and by ice in the vagina. Most of the ergot was vomited, however, though the color of the fluid rejected by the stomach had become so dark before its exhibition as to be scarcely affected thereby.

The patient being replaced in bed, and the best measures taken to promote reaction, we felt obliged to give the most unfavorable prognosis possible, and separated without making any appointment for further consultation. The child was a male, and of large size.

On the 26th November, being in that vicinity, I called to learn her fate, and found her doing moderately well—the vomiting still persistent—pulse 100.

December 4th, I again saw her—the abdomen swelled and tender—some milk—no lochia.

In the latter part of the month I again called, and found that she was out walking, and had quite recovered.

Dr. Slevin informs me that he treated her with a moderate use of sedatives and stimulants.

CASE 85.—*Ruptured uterus; version; anterior uterine obliquity; brow presentation.*

November 24, 1860, I was called in consultation, by Dr. Owen Sweeney, to Mrs. —, and found Dr. Bishop and Dr.

James Sweeney present. The patient was a multipara, who had been apprehensive of the result of this confinement from the great anterior obliquity of the uterus. The membranes had ruptured at the commencement of labor, and Dr. Sweeney had recognized the forehead as the presenting part. The labor was tedious, and the pains not remarkably severe, but referred, for the most part, to the right iliac region. With the aid of a sheet, Dr. S. gently and carefully strove to remedy the great uterine displacement, the patient resting on her back. No oxytocic preparation was used, nor was any thing done to advance the labor beyond the means referred to. After some twenty-four hours the patient complained that the pains were very severe, and different from labor-pains, referring her chief sufferings still to the right iliac region. Collapse soon followed, with total cessation of uterine contractions, and much vomiting of a dark fluid. Six hours subsequently I saw her, and found her collapsed, cold, pale, and with a feeble pulse. The marked anterior obliquity was very striking, though not so much as Dr. S. had previously observed. Pain was complained of on pressure over the right iliac region. Vaginal examination disclosed an extensive laceration of the posterior lip and vaginal cul-de-sac, through which the whole hand readily passed into the peritoneal cavity, where the head of the child could be distinctly felt to the right of the lumbar vertebræ. So near death did she seem—the child being so already—that I felt loath to embitter her last moments by an operation; to which conclusion the gentlemen present had already arrived. We separated, with the understanding that if she could be rallied we would meet again. Dr. Sweeney succeeded in doing so, and in about ten hours we met again. Dr. Bishop having distinctly appreciated the condition of things, I turned with facility, and delivered by the feet a well-grown dead child. No chloroform. The uterus contracted well, but she died in about fourteen hours. No post-mortem.

Remarks.—Although I cannot imagine that the fate of this

poor woman would have been changed if version had been performed at an earlier period of labor, I am still sure that it was very wrong to yield to the extreme reluctance which one so naturally felt to subject the poor creature to the operation of version while so near death.

In addition, however, to the effect produced on all the consultation by the piteous condition of our patient, we recalled the fact of our having all met together but a few months before by the bedside of a woman believed to be the subject of the same accident, although the precise site of the laceration was not determined. In that case the patient was collapsed when I saw her; still I delivered by version, but she only survived three hours. No chloroform.

While it would be my endeavor to convert a brow presentation either into that of the posterior fontanelle, or into that of a frank face presentation, my experience has taught me both that the manipulation is not always successful, even when aided by the vectis; and also that occasionally the brow will slip down again after the hand or instrument is withdrawn, even when no cause exists, such as obtained in cases 79 and 80, and when nothing prevents perfect flexion of the head—such an obstacle, for instance, as the hand or arm of the child in front of the neck.

I am well aware that the contingency of a brow or chin presentation (or rather the fact that one of these points should be lower than the rest of the face) is considered as an accident not materially influencing the progress of the labor, and capable of restitution in the movement of descent. And I am very sure that one has a perfect right to anticipate, or at least hope for, such a termination. Still it has so far happened in my experience that these cases of brow presentation have been apt to exhibit untoward results, and to demand interference. Such facts may have been exceptional, but still, in the practice of my friends, two such cases have been mentioned to me at their commencement; and while in both I

wished the physicians better luck than I had sometimes met with, in both, as I was subsequently informed, the delivery was finally accomplished after perforation.

CASE 86.—*Rupture of uterus; patient died undelivered.*
—Dr. Hawthorn, House Physician.

This patient, named Canet, in the eighth month of her ninth pregnancy, was admitted into Bellevue under the following circumstances. She had been under the care of three physicians—names unknown—for uterine hemorrhage, supervening on violent exertion. Subsequently, Drs. Griscom and Connery were called, as her former physicians had left and did not propose to return. She was then flowing, nearly pulseless, complaining of burning pain in the epigastrium, and vomiting incessantly. The hemorrhage was checked by acetate of lead and opium, the pain somewhat soothed by a hop-poultice. Suspecting placenta prævia, Dr. C. introduced an alum-plug and sent her to the hospital. She entered September 23d, 1859, moribund, and unable to retain any thing on the stomach or in the rectum. No hemorrhage. A tampon was introduced by Dr. Hawthorn as a precautionary measure, and Dr. Elliot sent for. On his arrival he removed the tampon and found the os dilated to the extent of one and a half inches, and not further dilatable. Patient evidently not at full term. The cervix contained offensive clots and shreddy material, but the placenta could not be reached. The abdomen was much swollen, excessively tender, and very emphysematous below the umbilicus, especially in the right iliac region. The outlines of the uterus could not be mapped out, nor could an extra-uterine foetus be detected through the abdominal walls. Neither foetal heart nor uterine souffle audible. The flow had completely ceased. Under these circumstances delivery being impossible *per vias naturales*, Dr. Elliot requested that compressed sponge should be introduced within the cervix, and the tampon be applied in the event of the return of hem-

orrhage, and that the patient should be stimulated by enemata and the hot-air bath.

Dr. Hawthorn had already bandaged the legs. Dr. Elliot requested that a consultation should be called for four o'clock (one and a half hours later), but the patient died half an hour afterward, after an access of vomiting. The uterine hemorrhage had not returned. The hot-air bath produced perspiration almost immediately, and was, therefore, stopped.

Autopsy, eighteen hours after death.—Weather murky and warm; cranial and thoracic cavities not opened. Much frothing at the mouth. Abdomen stained green around the umbilicus and at the sides. Tympanitic. Emphysema within abdominal cavity quite appreciable. Abdomen opened by crucial incision, and was followed by a great escape of gas. No emphysema of abdominal walls. Peritoneum intensely injected. Clotted blood removed to the extent of twenty-four ounces avoirdupois, and a large quantity of fluid blood escaped without its amount being appreciated. The foetus in its amnion, and with a greater part of the decomposed placenta attached, was found in the cavity of the abdomen. The foetus crepitated on pressure, and the bones of the head moved on each other. The well-known attitude of the foetus in utero was preserved. The intestines were removed, and the blood sponged out, when the rent in the uterus was distinctly seen to extend from the centre of the fundus along the mesian line downward, and laterally for five inches and a half. No laceration of the vagina—vaginal walls crepitated on pressure. Fingers introduced within the vagina visible through the uterine rent. Pelvis normal, with the exception of the spine of the right ischium, which was somewhat elongated and turned up. No bony projection, sharpness, or spicula to be found, which could have influenced the case. The uterus was put in alcohol, and microscopic examination omitted. The specimens were all shown at Dr. Elliot's clinic in the College of Physicians and Surgeons, September 30, 1859.

CASE 87.—*Right mento-iliac presentation ; death of child ; ergot ; craniotomy.*—*Bellevue*—*Dr. Wm. T. Nealis, House Physician.*

Rosanna Sexton ; Irish ; aged 25 ; primipara ; admitted to lying-in ward October 21, 1862. Has been suffering from pains in the back since the 19th instant. As the labor-pains were ineffectual, a comfortable night's sleep was produced by McMunn's elixir. During the 22d the pains were at long intervals, and of no great force, the os uteri being only slightly dilated. At 9 P. M. five drops of Magendie's solution of morphia were given, which produced a comfortable sleep. During the 23d the pains came on at shorter intervals, and with greater force. The membranes ruptured at noon. At half-past 1 P. M. Dr. Elliot saw the patient, and recognized a right mento-iliac position of the face, and thought the child dead, as there was no foetal heart audible, and no motion when the finger was introduced into the child's mouth. He ordered a drachm of the tincture of ergot, which acted very speedily, and produced powerful pains ; but there was no advance of the head, the chin remaining in the same position when Dr. Elliot saw the patient again, seven hours after. Dr. I. E. Taylor and he then decided on perforation, which was done by Dr. E., after Dr. Mola had given chloroform. Dr. Thomas's perforator was introduced into the right temple, close to the orbit, and the child delivered. A half-ounce more of ergot was given, but as no pains followed, the placenta was removed by the hand two hours afterward. Uterus contracted well. No hemorrhage. On the nineteenth day the patient left the hospital in perfect health.

CASE 88.—*Shoulder and arm presentation ; cephalic version by external manipulation, aided by vectis and forceps, ineffectual to flex the head ; podalic version and perforator.*—*Bellevue*—*Dr. Charles B. White, House Physician.*

Ann Power ; single ; aged 30 ; second pregnancy. Labor

commenced April 10, 1867, at 11 P. M., and terminated on the 11th, at 6.30 P. M. First stage, twelve hours; second, seven and a half. Female child, still-born. Weight, six pounds six ounces, without the brain.

The waters broke at the commencement of the labor, but the os was so high up and undilatable that Dr. White did not distinguish the presentation until about 8 A. M. on the 11th, when he recognized the left shoulder, shortly before the arm came down in the vagina. I was sent for about noon, and went immediately, and by external palpation recognized the head above the pubis in front, and determined to convert the presentation into a cranial one. Having carried the arm within the uterus above the chin of the child, I succeeded by external manipulation in bringing down the head to the brim in a transverse position, nor did the arm again prolapse. All my efforts, however, even though aided by one blade of the forceps, used as a vectis, failed to flex the head, the fontanelles remaining obstinately in nearly the same place. Still hoping that time and the advance of the labor might bring this about, I requested the house physician to maintain pressure against the brow (*per vaginam*) during the uterine contractions, which continued strong and frequent. At 5 P. M. I returned, with Dr. Taylor, and found that nothing had been gained; on the contrary, the anterior fontanelle had descended somewhat. With his approval I now applied a vectis to the occiput, and made powerful but ineffectual efforts to flex the head. Pulse good. Condition of vagina good. Patient somewhat weak. Gave some wine, and having anaesthetized with chloroform, I applied the forceps and endeavored, unsuccessfully, to bring about some advance. As the foetal heart was beating, there remained the necessity for podalic version, which I had desired to avoid. Having delivered the body and the arms, the chin was found extended and so fixed that I could not move it, and I requested Dr. Taylor to try. He made every effort to do so, but did not succeed; so I pressed the perforator into the back part of the

neck, and sheathing it in these tissues, penetrated the occipital bone, and delivered with a crotchet. For some days after the mother had a quick pulse, with tympanites, pain, fever, and slight delirium, but entirely recovered, by the aid of morphia, turpentine stupes to the abdomen, and warm fomentations to the vulva.

Management of frank face presentations.—In frank face presentations, when the chin is directed in front, the head well proportioned, and the parts well relaxed, it is probably better not to interfere at all. The risks of failure and of inducing premature respiration may be set against the slight risks from difficulty associated with the presentation itself. Every now and then men come forward with claims for manual interference in all of these cases, as if the proposition were a new one, and as if by general consent the profession had not settled down to the conviction that interference was to be reserved for those positions with which additional danger is associated. As a rule, under the circumstances we are now considering, the labor passes on quietly and naturally; and if unnecessary manipulation be withheld, the face at last peers out from the vulva as from a frame, recedes in the intervals of the pains, and finally passes naturally into the world with only the likelihood of a disagreeable but temporary ecchymosis.

The result may be very much modified by the continued, unnecessary, and awkward manipulation of an inexperienced physician, uncertain of his diagnosis.

CASE 89.—*Locked face presentation; effects of manipulation; forceps; perforator.*

Many years ago I was called in consultation to a case of face presentation with the head of the child wedged in the pelvis; and by my invitation Dr. Metcalfe, and then Dr. Chas. D. Smith, also saw the patient, who was a primipara. The

presentation had not been recognized, and the eye had been pushed out by repeated examinations, and hung from the denuded orbit. No fœtal heart. I applied two different pairs of forceps, and neither Dr. Metcalfe nor myself could move the head; when I perforated through the orbit, and the mother made an excellent recovery.

If the young practitioner be led to believe that it is necessary to interfere in every case of face presentation, he may be exposed to the annoyance experienced by a gentleman to whom I heard Prof. Simpson allude in his lectures. This young gentleman had recently settled in a small town in Scotland, and met with an ordinary face presentation in his first case of labor; which, from the character and position of the patient, attracted great attention in the town. Conscientiously believing that interference was necessary, he frankly stated the situation, and sent a messenger on horseback in hot haste for an experienced practitioner many miles away. This heartless man, hearing the full details of the case from the panting messenger, yawned and yawned in the cool night air, and asked how much time had been spent on the road; when, yawning again, he advised the man to ride back quietly, as there was no necessity for any assistance, and the baby would surely be born before his return. Unluckily for the young doctor, this was the fact; and the story was so circulated that he found it desirable to take a fresh start in another place.

Chin posteriorly.—In cases, however, where the chin is directed posteriorly, the risks are greater, although it is my belief that it rotates anteriorly more generally than some eminent authorities are willing to admit. In two cases of this character which I have witnessed, where experienced men have performed version for the purpose of saving the child from the risks attending this position of the face, the children have been delivered still-born. It is my impression

that it is better, *as a rule*, to trust to nature than to perform version in these cases; but that the endeavor to convert the presentation into that of an occipital may be preëminently indicated. If, however, we cannot succeed in the manœuvre, we may assist the rotation anteriorly by coaxing the chin around when opportunity serves us, or we may effect the rotation by the vectis or with the forceps. In these operations we can facilitate the rotation by external manipulation through the abdominal walls; and we must not take all the credit in these, or occipito-posterior cases, for too prompt success, since our interference may have fortunately coincided with the spontaneous movement of the head. On the other hand, we must not be precipitate and harsh, for fear of twisting the child's neck too strongly, and thus interfering with the cerebral circulation.

I have had no experience in converting cranial into face presentations for facilitating delivery through a contracted brim.

Notwithstanding the ingenious arguments which have recently been presented in England, I cannot regard a natural delivery of a face presentation with the chin persistently directed posteriorly as other than an exceptional incident, and not safely to be anticipated in any given case.

CASE 90.—*Face presentations; rotation of chin to pubis with forceps.*—Bellevue—Dr. C. Haasse, House Physician.

Mary Jones, aged 19; first. In labor from November 10, 1857, 11 P. M., to 12th, 6.40. Child, girl, weighing 8½ lbs. Both did well. First seen November 11th, at 2 A. M., by Dr. Haasse. Os just admitted the finger. Membranes broke at 4 A. M. Os then dilated to the size of half a dollar. Pains good, but little progress till 9 A. M., when they ceased. Morphine then enabled her to sleep from 10 A. M. till 3 P. M. Dr. Haasse then made out face presentation. Caput succedaneum on right frontal protuberance. Chin directed nearly

back to right sacro-iliac synchondrosis. 5½ P.M.—No perceptible progress. Dr. Elliot delivered a living child with Simpson's forceps, rotating first the chin to the pubis.

*Further illustrations of the use of the hand in facilitating labor.**—Viardel was right in claiming advantages from a more extended use of the hand in obstetric operations, although his devotion to a single idea induced him to overstate its advantages. We may occasionally ward off serious risks by timely use of conjoined or bi-manual manipulation, as in the following case.

CASE 91.—*Case of twins in a pelvis with conjugate diameter of three inches and a half; risk of locking of the heads prevented by manipulation.*—Dr. Francis Delafield, House Physician, Reporter.

Mary Hoey, aged 24, unmarried, primipara, fell in labor in the lying-in wards of Bellevue, October 14, 1863, 6 A.M. Patient first seen October 14th, 7 P.M. At that time the os uteri was soft and dilated; membranes not ruptured; no presenting part within reach. Uterine tumor large and projecting forward. Contractions feeble. 9.15 P.M.—Dr. Elliot saw the case. Membranes not yet ruptured, but very tense, thin, and protruding through the os. No presenting part to be reached (tension of membranes preventing). The sacral promontory is felt projecting, leaving an antero-posterior diameter of about three and a half inches. The abdomen presents a large projecting tumor, with a sulcus apparent to the right of the median line. One foetal heart can be heard about four inches below the umbilicus and a little to the left of the median line. Dr. Elliot stated his belief that the case was one of twins superimposed. The membranes then ruptured spontaneously, when two heads could be felt presenting. One to the left and superiorly, with its membranes

* Vide *New York Medical Journal* for June, 1866, for an "Historical and Bibliographical Notice of Cosmo Viardel," by the Author.

still unruptured; the other (of which the membranes had ruptured) to the right and beneath. The lower seemed likely to advance first and catch beneath the upper. Dr. Elliot feared the risk of locking, and rupturing the membranes of the upper child, he placed his hand on the abdominal wall over that head, which was superior and to the left, and forced it into the pelvis in advance of the other. The contractions now became more powerful, and continued until 2 A. M., when the head which had been pressed down was first delivered, with the occiput under the pubes. In fifteen minutes the second child was born, full rotation not having taken place. At 2.30 A. M. the placentæ were born within a few minutes of each other. They were entirely distinct, and each complete in itself. 1st child, female, 4 lbs. 4 oz.; 2d, male, 4 lbs. 8 oz. Both living. Measurement of conjugate confirmed with the finger after delivery.

Remarks.—Now, had I seen this patient before labor set in, and recognized the deformity, I might have been greatly embarrassed by the difficulties in the way of reaching the presenting part of the child. It is probable that, as I diagnosed twins before the waters broke, I might have made that diagnosis before labor set in. In these and similar contingencies, the pelvis being deformed, and the woman *enceinte autant qu'on peut l'être*, I consider that premature labor would have been indicated; nor am I sure that when the small size of the children is noted, and the liability to premature labor in twin cases remembered, the case may not, after all, have been one of spontaneous premature labor. It has occurred to me that there might be some embarrassment in such a procedure as was practised here, in countries where the rights of primogeniture might have thus been summarily decided by the accoucheur in favor of a particular twin, had both been boys. Still, in this procedure, the twin excluded from the birthright could not even claim, on such evidence as that of the scarlet thread in the case of Tamar, the daughter-in-law of Judah.

Benjamin Pugh.—The practical recommendations of this excellent accoucheur suggest a practice which has attracted little attention in the books, although his plan of giving air to the child has been revived in our times.

Speaking of cases of pelvic presentations, original or converted, in which delivery of the head is so difficult that the alternative of perforation must be considered, he says :

“When you find this to be the Case, keep your Left hand still in its Place; never let that go; desire the Nurse or one of the most handy Women about you to get upon the Bed, kneeling close by the Side of your Patient, with her Face to you, and put her Hands under the Bed-clothes (but at this Time only a Sheet covers the Patient unless very cold Weather) down to your Patient’s Pubis, with the inner part of her Arms turned to your Patient’s Belly, then with your Right-hand feel externally for the Child’s Head; and where the most proper Place is not exactly over the Pubis, but on each Side toward the Groin, there fix the Hind-part of the Palms of both her Hands upon the Child’s Head, bidding her press down pretty strongly, you pulling the Child at the same time. . . . By this Method, joined to that of giving the Child Air, experience has convinced me, that every operator will soon find the great Benefit of them, by saving a great many Children which otherwise would perish; for by this Method of Turning and the Assistance of my curved Forceps when Turning was impracticable, I have not opened one Child’s Head for upward of fourteen Years.”

CHAPTER VIII.

POST-PARTUM HEMORRHAGE.

Case: Post-partum hemorrhage.—Remarks on post-partum hemorrhage.—Why tonic uterine contraction is desirable.—Treatment.—Ergot.—Hand in utero.—Cold.—Manipulation of the uterus.—*Case:* Foot, hand, and funis presentation of second twin; commencing inversion of the uterus rectified by manipulation.—Undue elevation of the fundus uteri a sign of danger.—Its causes.—Fatal post-partum hemorrhage does not necessarily flow out of the vagina.—*Case:* Albuminuria; post-partum convulsions; post-partum hemorrhage.—*Case:* Post-partum hemorrhage.—Why the placenta and membranes should be carefully examined.—How soon delivered.—How removed.—Indications for an anæsthetic.—Hemorrhage when the uterus remains contracted.—Position of patient.—Arteries.—Warmth.—Restoratives.—Enemata.—Anodynes.—The Dublin School.—*Case:* Tedious labor; forceps; novel views of uterine hemorrhage.—Transfusion.—Anæmia.—Predisposition to future post-partum hemorrhages.—Ergot for multiparæ after labor.—Subsequent hemorrhages.—*Case:* Forceps; puerperal fever; bronchitis; death from uterine hemorrhage eleven and a half days after delivery.—Obstetric binder.

CASE 92. — *Post-partum hemorrhage.* — *Dr. Forman, House Surgeon.*

Alice Merwin, æt. 20; U. S.; married; admitted to Bellevue, March, 1867, in the eighth month of her first pregnancy. Labor commenced April 12, 1867, at 6 P. M., L. O. A. Membranes ruptured at 1 A. M. on the 18th. The second stage was accomplished in two hours; the pains during the early part were infrequent and feeble, but quite powerful when the head reached the perineum. After the occiput had escaped and the head was being extended, there came a very violent pain, and the whole child was expelled in one expulsive effort, followed immediately by a gush of blood.

The uterus was grasped by the hand and forced down in the pelvis, but did not contract. Blood flowing freely from the vagina, ʒss of the fluid extract of ergot was given. The cold douche and friction to the abdomen, with ice, were used. The fundus uteri firmly grasped with the hand, and ice passed into the vagina. After using these measures for a few minutes, the uterus contracted and expelled the placenta, but this contraction was only momentary, and after delivery of the placenta the blood flowed in a stream from the vagina; the woman became pallid, restless, gasped for breath, and had an extremely anxious look. Pulse very weak, and so frequent that it could not be counted. Dr. Forman then introduced his hand into the cavity of the uterus, turned out a mass of clots, and thus held the uterus by conjoined manipulation. As this manœuvre had no effect, a piece of ice, the size of an egg, was carried up to the fundus, and the uterine wall rubbed with it. This almost immediately excited contraction, when it, together with the hand and a mass of clots were expelled, and the hemorrhage ceased; the woman meanwhile having fallen into a state of syncope, from which she rallied, after her head had been well lowered, and her limbs elevated above the level of her body. As soon as she was able to swallow, an ounce of whiskey was given, which she vomited, and then a hypodermic injection of thirty drops of Magendie's solution of morphia was given. The uterus remaining contracted for an hour, and all hemorrhage having ceased, a bandage was tightly applied, and the woman left asleep, in which condition she remained for several hours. Upon awakening, her pulse was 160 and very feeble. Ordered absolute rest. Egg-nogg, one ounce an hour. Extra strong beef-tea.

After the hemorrhage had ceased, the clots of blood lying on the bed under the woman were gathered up, and filled an ordinary tin wash-basin two-thirds full. The duration of the hemorrhage was about ten minutes.

April 15th.—The patient has been kept moderately un-

der the influence of morphine, and has taken all the nourishment it was possible to administer. She is very anæmic, weak, and has a pulse of 150.

May 1st.—The patient has been slowly and steadily improving in strength, but has lately had some bronchitis, and rheumatic symptoms in the left hand, and a swelling over the dorsum has been opened by an exploring-needle, discharging serum, but no pus. The opening was closed at once, and the hand put on a splint.

May 8th.—Thoracic symptoms relieved. Patient sitting up. *31st.*—Patient can walk about the ward, and out on the balcony. The splint gave great relief, so much so that she would not allow it to be removed, and would replace it when removed by the attending physician, who repeatedly warned her of the risks of continued immobility of the joint. She has now some fibrous ankylosis.

July 15th.—Passive motion has been faithfully kept up, with the effect of partially restoring motion.

September 20th.—Patient has nearly regained the perfect use of her wrist, and is perfectly well. Expresses regret that she would not bear the passive motion and withdrawal of splints when they were first recommended.

Remarks on post-partum hemorrhage.—The case of Alice Merwin (No. 92) is a type of those so frequently met with in practice, and a striking illustration of the dangers which the student may be called on to meet in his first case of labor, and which he must be thoroughly prepared to encounter.

It is my conviction that deaths from post-partum hemorrhage, of the immediate variety from which Alice Merwin suffered, rank among the most preventable causes of death; and that the practitioner, responsible for the treatment, has the burden of proof thrown on him to show why the mother's life was not saved.

Under these circumstances, the narrative of Dr. Forman's prompt and determined treatment may be read with advan-

tage, and may well serve as the basis of some practical suggestions.

Why tonic uterine contraction is desirable.—As a clinical probability, we assign immediate post-partum hemorrhage, and after-pains, to the multipara, rather than to the primipara; and attribute both, with justice, chiefly to the relaxed and inefficiently contracted state of the uterus. As a rule, if the uterine muscular fibres are tonically contracted, they ligate the uterine sinuses, and prevent undue loss of blood; they squeeze out the amount of blood which the sponge-like distribution of the sinuses permits them to retain; and thus it is undoubtedly true that if we could weigh the thoroughly contracted uterus in one woman just after confinement, and then weigh the relaxed uterus with the blood still in the sinuses of another, we would obtain a marked difference in the increased weight of the latter. Independently, therefore, of the value of a contracted uterus as a prophylaxis of post-partum hemorrhage, and of the annoyance from after-pains, it is evident that such a condition places the uterus in a better state for the important processes of involution which so rapidly follow on delivery. On two occasions, I have found that the fatty degeneration of the uterine muscular fibre has commenced within twenty-four hours after delivery, and it is probable that the commencement of this return to the physiological condition of the unimpregnated uterus is always rapid. It seems, therefore, to me that independently of the risks from hemorrhage, and the desirability of preventing after-pains, tonic contraction of the uterus is most desirable as a means of warding off hyperæmic conditions, which cannot fail to increase the risks of those inflammatory sequelæ of labor to which the uterus is liable.

Treatment.—In the case of Alice Merwin, the cause of the hemorrhage seems to have been relaxation of the uterus after a rather rapid labor for a primipara, with powerful expulsive

pains. Under these circumstances, the treatment offers an example of the graduation of remedies increasing in severity in ratio to the continuance of the flow. *Ergot*.—As soon as possible give a reliable preparation of ergot in full doses freely. I always have this medicine ready for this purpose in every case of labor. *Hand in utero*.—It is a very good rule to abstain as long as is safe from the introduction of the hand in utero after labor, and especially in lying-in hospitals, for their statistics show an increased ratio of subsequent puerperal inflammation after this procedure. Still where other and milder measures have proved themselves inoperative, he is the best practitioner who coolly and promptly proceeds to those which remain. *Cold*.—There is a disadvantage from the application of cold water in quantity to the abdomen, as the dress and bed-clothes are liable to be so wetted as to demand a change while the patient is yet exhausted from the flow, or expose her to other risks. The ether-spray instrument of Richardson might produce the amount of cold and shock desired without these inconveniences. For my own part, I have not poured a column of water on the abdomen for many years, as I find that a lump of ice held in the hollow of the hand over the fundus, with ice in the vagina, and possibly in the rectum, have sufficed. And while I have often carried ice to the cervix uteri, it has never been necessary in my practice to carry it within the cavity of the womb.

Manipulation of the Uterus.—It is undoubtedly the fact that post-partum hemorrhage can be prevented in a large proportion of cases, by the skilful control of the uterus maintained by the hand placed over the fundus, while the child is passing into the world, and retained there until some time after delivery of the placenta.

I never omit this practice in my own cases, and when obliged to remove it temporarily for the separation of the cord, or delivery of the placenta, etc., I satisfy myself that

the hand of another person is properly applied, and grasping the uterus, during the interval.

Generally speaking, after delivery of the placenta, I prefer to retain my hand over the fundus until the baby has been washed and dressed, before applying the bandage.

This manipulation of the uterus is fatiguing, and I have very frequently known it to be conscientiously performed in a bad manner. In the first place, force is not necessary; in the second, the uterus must not be flattened, or pushed to one side. The ulnar border of the hand should dip down somewhat behind the fundus, the fingers should lightly estimate the contraction on the left side of the uterus, and the wrist is soon taught to estimate the condition of the right.

In the following case this manipulation warded off one of the most dangerous post-partum complications, remediable in direct ratio to the early date of interference:

CASE 93.—*Foot, hand, and funis presentation of second twin; commencing inversion of the uterus rectified by manipulation.*

Mrs. —, aged 30, primipara, pregnant with twins, was delivered of a living male child after a labor rendered tedious by great inertia of the uterus, and for which large doses of ergot had been given. I was sent for by the two physicians in charge, to deliver the second child. I found that great efforts had been made to deliver the placenta after the birth of the first child, and that the cord had been torn away. The vagina was somewhat lacerated. The hand and foot of the second child were in the vagina, enclosed in a caul and swollen, and a pulseless funis could be reached. The use of an anæsthetic was objected to by the physicians in attendance, and I readily delivered a good-sized still-born male child by pushing up the arm and drawing on the foot. The placenta came away readily, and showed the place where the first cord had been torn away.

A very free flow of blood followed the placenta, and through the thin and relaxed abdominal wall I recognized that the fundus uteri was deeply cupped. Carrying two fingers at once within the uterus to the fundus, with the other hand over the abdomen, I very readily coaxed and manipulated it into shape, when it contracted firmly, the hemorrhage ceased, and the woman did well.

Undue elevation of the fundus uteri a sign of danger; its causes.—The degree of elevation of the fundus is a point of importance, for if this be too great something is wrong, and there is risk of trouble, even if the contraction be good. In these cases I have always enforced attention to the bladder. If this be distended, let it be emptied at once, so that the uterus may sink into the pelvis, and have the strain removed. If the bladder be empty, then make a careful vaginal examination for clots or for portions of retained placenta.

While writing these pages I saw a patient in consultation with an experienced and skilful friend, on account of recurring attacks of syncope, with very moderate post-partum hemorrhage. The uterus was well contracted, not much enlarged, if any, but the fundus reached nearly to the umbilicus. As the physician had made a careful examination of the placenta (which he had been obliged to remove for adhesions), and had satisfied himself that none had been left behind, and as his last vaginal examination had detected no clots, I requested him to use the catheter, notwithstanding the patient's statements that she had just passed water. The bladder was found empty, and so I wondered whether increased pelvic obliquity, or some other anatomical peculiarity might explain this exception to what I have so long taught as a law. But in the afternoon some moderate hemorrhage recurring, and a vaginal examination being requested, a large portion of placenta was found still in utero, and partially adherent. As much as could be removed was taken away, and a portion still left *in situ* near the os

uteri, about the fate of which we felt uneasy for some days, finally came away, and the patient did well. When the removal of the greater part was effected, the uterus came down to its proper place, and asserted the supremacy of the law—that an unduly elevated uterus after delivery is a source of anxiety and risk, and that if it be noticed, the catheter should be used, and a careful vaginal examination always made.

Fatal post-partum hemorrhage does not necessarily flow out of the vagina.—Women may bleed to death without the torrent gushing from the vulva. Large clots in the vagina may act as tampons, and both conceal and facilitate the uterine hemorrhage.

CASE 94.—*Albuminuria; post-partum eclampsia; post-partum hemorrhage.*

Dr. — called me to Mrs. —, a multipara, who had been attended by a German midwife. She had subsequently suffered from eclampsia and hemorrhage, for which the doctor had been called, and after insuring good uterine contraction, and giving brandy by enema, he came for me. Her pallid, anæmic look struck me more forcibly than her unconscious condition, though there were no traces of blood in the bed. On examining the abdomen, however, I found the fundus of the uterus above the umbilicus, and the womb filled with clotted blood, which was readily taken away, when a small portion of retained placenta was found. After the customary measures, position, brandy, ergot, and beef-tea had rallied the patient's strength, I left. She was still unconscious. There was no other œdema than in the legs. Urine drawn with a catheter, and found to be very albuminous. I am informed that she died a few days afterward.

CASE 95.—*Post-partum hemorrhage.*

A patient of mine, subject to post-partum hemorrhage, was confined during my absence, and was attended by a

professional friend. I arrived at the house just after the bandage had been applied, and meeting him in the hall, requested him to give the patient a full dose of ergot before leaving, as I was sure that she ought to have the medicine, and it was better that he should order it. He laughingly declined, and on entering the room the report was made by the nurse that all was going well, but the expression of the patient's countenance was unfavorable, and the uterus as high as the umbilicus, and although there was no external hemorrhage, I turned out a quantity of clots which half-filled a large wash-basin, and was obliged to resort to very active measures to procure contraction and revive the patient, who had become unconscious before my task had been commenced. Dr. Edward Delafield saw her in consultation with me, and she recovered.

Why the placenta and membranes should be carefully examined.—It is evident from one of the cases just detailed that a very good practitioner may examine a placenta carefully, and believe that all has been removed, while yet some remains; a fact which should stimulate us to make a very careful examination of that organ in every case, and never to neglect a study of the membranes as well. I have seen a portion of the membranes left in utero in two autopsies of women dying suddenly after labor from other causes; and I know that the beginner may find it a task of no little difficulty to satisfy himself that he has fully removed portions of slippery membranes broken from the placenta, and left within the vagina. The best way is to twist them into ropes, if possible, and if they be within the cervix to twist and draw in the direction of the superior strait, as though you were trying to carry them back through the middle of the sacrum.

The placenta succenturia, a supernumerary, or slightly attached portion of a placenta, may be left behind unwittingly, as we have no right to assume its existence.

How soon delivered.—In such cases as that of Alice

Merwin, it is better that the placenta should be promptly removed, as a step to the permanent contraction of the uterus; and undoubtedly it is both better and more satisfactory that the placenta should always come away, or be made to come away, within a quarter of an hour after delivery of the child, unless in exceptional cases. But there is no Procrustean bed in the practice of medicine. Experienced and inexperienced men cannot be forced to adapt themselves to absolute uniformity of practice. In this, as in all that is elective, there is an esoteric and an exoteric school, and the beginner must not assume the liberty of action which becomes the expert.

How removed.—Still, if the uterus has been well manipulated, and the placenta be not adherent, or retained by irregular uterine contractions, or if the uterine bulk be not increased by clots, or by a very large placenta, the latter will in the great majority of cases be recognized by the touch, hanging over the anterior lip of the uterus, and partly in the vagina. In these cases, by aiding the next uterine contraction with a rather firm pressure, concentrically applied (if the expression be permitted) so as to simulate the uniform uterine contraction, and if the placenta be gently drawn or pushed with two fingers carefully in the direction of the superior strait, the delivery may usually be effected by a method not open to any serious objection, and within the control of all.

Indications for an anæsthetic.—If adhesions or irregular uterine contractions retain the placenta, and the hand must be passed in utero, then it is always better to give chloroform or ether before commencing; unless serious hemorrhage, or syncope, or great debility, or other contra-indications exist. Those who have delivered placenta under these circumstances with anæsthetics and without them, will indorse the recommendation. You may have to pass the fingers well within the uterus to the fundus, and through the abdominal

wall you feel them at their work with the hand which is on the abdomen and steadies the uterus in the task. The anaesthetic is not only to be recommended for its advantages in facilitating, shortening, and insuring the extra-uterine manipulation, it also saves the mother the mental shock of sustaining so severe a procedure when she had with good reason hoped that her trial had drawn to an end. It prevents her from recalling on the morrow, with a shudder, the painful and tedious manipulation which may have been demanded.

Hemorrhage when the uterus remains contracted.—It will happen sometimes that there may coexist great uterine hemorrhage with a contracted uterus. If the uterus be really empty and there be no inversion, then we may suspect that a laceration of some maternal tissue has implicated a vessel, or that a thrombus has formed and ruptured. Thrombi are infrequent, and are readily recognized as a law by careful examination. Some patients, with enormous varicose veins, whom I have attended in labor, have made me apprehensive on this score, the vulva feeling enlarged, and like the scrotal varicocele in the male. But the recumbent position saves these vessels from strain, and they have never given me any trouble, nor have the two cases of vaginal thrombi under my observation resulted in serious harm. But the blood may come from a vessel spurting in the torn perineum, from the lacerated cervix, or torn vagina. Two cases of hemorrhage from vessels in the perineum have occurred within a few years in Bellevue, and in each the vessel was readily seized and the bleeding stopped. It is only in the case of hemorrhage from a large and opened thrombus, that a tampon would ever be necessary for a post-partum (immediate) hemorrhage, and then it is very unlikely that any case could be found that would not yield to cold and firm pressure of lint or cotton dipped in the persulphate of iron.

Position of patient.—With the use of the measures for

controlling the escape of blood, those should be simultaneously conjoined which keep the residue in the brain and thorax, and favor the prompt manufacture of more. These are equally indicated in all cases of dangerous uterine hemorrhage.

All manœuvres connected with the delivery of the placenta and management of the uterus can be readily used while the patient's knees are held high up in the air, and the pelvis even partly lifted from the bed. The arms can be held up, and the head thrown well down below the level of the trunk if necessary.

Arteries ; warmth ; restoratives.—The abdominal aorta and the brachial arteries can be compressed, the window opened, water dashed on the face, strong restoratives applied to the nostrils, while the important work with the uterus is going on. And the practitioner should be alive to the desirability of keeping up the patient's warmth. She should not be uncovered ; she may need bottles of hot water around her person.

Enemata.—Though she should be unconscious as the dead, she can have enemata of strong beef-tea and whiskey, or brandy, thrown into the rectum, and held up by pressure against the anus with a folded towel, until they are safely retained. Nowadays Borden's extract of beef enables us to prepare the tea in a moment, and of excellent quality. And indeed these enemata are valuable for other reasons. You can throw more up, and a greater quantity of brandy. There are not the same risks that nourishment may not be acted on, and become oppressive, as exist when it loads the paralyzed stomach. The stomach under these circumstances is peculiarly liable to sympathetic vomiting, which, while it is apt to be associated with renewed uterine contractions, still costs the patient the food which she has been made to swallow. And indeed I have often known the undigested mass

to be thrown off by the stomach many hours after it was hoped that it had done its work. If the food be not digested it becomes an oppressive foreign body, and adds to existing prostration. The rectum, therefore, should be made to receive the bulk of the food in these distressing cases.

Anodynes.—After time and the measures discussed have brought about tonic uterine contraction, and the pulse shows that danger of immediate death is over, great restlessness, jactitation, and mental anxiety often remain. If the patient should not soon be composed by a natural sleep, then an anodyne is indicated. Here, again, I prefer to pass a suppository into the rectum, or to give an anodyne by the mouth, rather than to use hypodermic injections. The latter, however, have the great advantage of being immediate in their effects; but the dose must not exceed ten drops (five are better) of Magendie's solution, until time has thoroughly shown that there is no danger of an overdose, or of producing a cumulative action.

The Dublin School.—My note-books contain a history of the impression made on my mind by the methodic, systematic, cool treatment of a bad case of post-partum hemorrhage that occurred in a patient under my care while a resident pupil in the Dublin Lying-in Hospital, in 1849; Drs. Shekleton and Johnston saving a woman from what seemed impending death as certainly as though she had been saved from drowning; and while the profession is indebted to that school for the spread of the best principles of preventing post-partum hemorrhage, it is certain that in 1867 the rules will still bear to be kept—as we say—before the people.

CASE 96.—*Tedious labor; forceps; novel views of uterine hemorrhage.*

In the year 1859 I was sent for to Yorkville, to deliver a woman who had been in labor two or three days, and took with me my friend Dr. Reuben Cobb, of North Carolina, then

one of the house physicians of Bellevue. We found the patient under the care of a midwife, in a deplorable condition, with green vaginal discharge, and greatly swollen vulva, but with the foetal heart audible. The head was in the superior strait, with the movement of descent not yet completed. Dr. Cobb brought the patient under the influence of chloroform, and I delivered her of a living child, which did well, as did also the mother.

Before leaving, I took the midwife into another room, to ask what she would do if flooding were to occur. With much blarney, and approval of my operation, she replied: "Sure, darlint, and I niver fear that at all at all. I just goes into the garden, and takes a bit of clay about as large as the palm of my hand, and puts it on the pit of the stomach, in the name of the Father, Son, and Holy Ghost."

Seeing that this act of simple faith was all that the poor woman had to rely on, we thought it advisable, as the days of miracles were passed, to administer a good dose of ergot before leaving.

Transfusion.—In all the cases that I have seen, the question of transfusion has only come up on two occasions. Once it was performed at the Hôpital St. Louis by Nélaton, in a case of placenta prævia, saving the patient's life for the time, though she subsequently died from metro-peritonitis; and once in this city. In Paris my friend Dufour, then Cazenave's interne, furnished the blood, and this being lost by the agitation of an assistant, a second supply was taken, and received directly in a syringe previously warmed.

Dr. Bronson, of this city, asked me to see a primipara with him for post-partum hemorrhage. This had been entirely controlled before my arrival, nor did any take place afterward, the uterus remaining contracted and empty, and the vagina free from blood. But she continued to sink, and could not be rallied, although she was conscious. Dr. W. H. Van Buren then saw her, and was prepared to transfuse, but

it is sad to relate that the husband refused to furnish the blood, or even to allow transfusion to be performed on the young wife, who was bidding him the most affectionate farewell with her last breath.

Anæmia.—If these patients escape the peril of their position, and the risk of heart-clot, there remains for them the certainty of anæmia, which may occasionally affect the constitution for life, and always demands iron and a roborant treatment.

Predisposition.—They may develop an increased liability to post-partum hemorrhage in the next confinement, require additional prophylactic treatment, and more careful watching.

Ergot for multiparæ.—It is my custom in Bellevue, for these and the preceding considerations, to direct that all the multiparæ in my service shall receive a full dose of ergot after labor; and such is my custom in private practice, unless in very exceptional cases.

Subsequent hemorrhages.—Unfortunately, immediate post-partum hemorrhage is not all the risk. The subsequent, or secondary ones, prominently acknowledge as causes retained portions of placenta, membranes, and clots; or ulcerations of the cervix, or vaginal tissues, possibly involving a vessel; or undue exertion. But sometimes the hemorrhage may come, and may cost the patient her life, and without an autopsy we may remain ignorant of the cause, as in the following case.

CASE 97.—*Forceps; puerperal fever; bronchitis; death from uterine hemorrhage eleven days and a half after delivery; child did well.*—Bellevue Hospital—Drs. J. R. Buist and George S. Hardaway, House Physicians.

Mary Conroy, aged 26, unmarried, fell in labor at 5 A. M., October 28, 1857. The second stage had lasted eighteen

hours, and during the last fifteen the head was retained in the brim by the promontory. The pains were and had been efficient, head in first position, olive-green discharge from the vagina, foetal heart beating very rapidly.

Under these circumstances Dr. Buist sent for me, and the woman having been brought under the influence of chloroform, I delivered her with forceps of a living child, weighing ten pounds, which subsequently did well.

October 31st.—Until to-day the woman's condition has been satisfactory; but now lochia are suppressed, abdomen tender, face flushed, pulse frequent, tongue moist. Warm fomentations ordered to vulva. Turpentine stupe to the abdomen.

November 1st.—Chill. Pulse 135, skin hot and dry. Quarter of a grain of the sulphate of morphia and ten drops of the tincture of the veratrum viride every two hours.

November 2d.—Better in forenoon, but worse in afternoon. Transferred to the fever ward, service of Dr. McCready. At this time she had a dusky flush of face, pulse 140, respiration 36, and thoracic, tongue dry and coated brown, abdomen immensely distended, and very tender to the touch, lochia very foetid, no secretion of milk, lips dry and cracked—sordes on both, and loose, green discharges from the bowels. Ordered opium one grain, quinine two grains every two hours, with ten drops of the tincture of the chloride of iron at the intermediate hour. Whiskey $\frac{3}{4}$ ss every hour. Diet, beef-tea and boiled eggs.

November 3d.—Tongue not so dry, otherwise condition about the same; blister 6 by 8 applied to abdomen, and then dressed with mercurial ointment. 5 p. m.—Pulse 134, tongue moist, diarrhoea checked.

November 4th.—Forenoon; pulse 130. Does not like the whiskey, Madeira wine substituted. 5 p. m.—Pulse 140, tongue dry, no lochial discharge, $\frac{3}{4}$ ss wine every half hour.

November 5th.—Pulse 124, respiration 26, tongue dry, very restless, wanted to sit up, slightly ptyalized. 6 p. m.

—Pulse 140, nates and lower part of back red, and much irritated, as though bed-sores were about to form.

November 6th.—Something better, wine not good, brandy in its stead, $\frac{3}{4}$ ss in milk every hour. Reddened skin painted with collodion, simple cerate substituted for the mercurial ointment, other treatment continued.

November 7th.—Pulse 124, tongue dry.

November 8th.—Pulse 128, patient does not look so well, has considerable bronchitis. Turpentine stupes to chest; other treatment continued. The natural lochial discharge has reappeared.

November 9th.—Pulse 124, tongue dry, respiration natural, patient looks better, bowels opened for the first time in two days. In the afternoon the lochial discharges became rather free, though not considered as an unfavorable symptom. 4.40 P. M.—Dr. Hardaway sent for, as the patient had a chill. Pulse 200. 5 P. M.—Pulse 180. Tinct. veratri viridis, gtt. x. 6.30 P. M.—Pulse 140; v. v. gtt. x. 7.30 P. M.—Pulse 124. Tinct. veratri viridis, gtt. x. 8.30 P. M.—Pulse 128; v. v. gtt. x.

8.45 P. M.—Dr. Hardaway was hurriedly called from his room, because blood was seen to drop from the patient's bed on the floor. She had made no complaint nor spoken to her neighbor in either bed, and was blanched and pulseless before Dr. Hardaway could reach her side, and died almost immediately, though he had instantly ascertained that the hemorrhage was uterine, and had plugged the vagina.

Obstetric binder.—A diversity of opinion exists regarding the application of bandages after labor, and the question is more important in its relations to post-partum hemorrhage than to any thing else. Many of those who believe in the desirability of applying bandages snugly, aim to accomplish the result by inserting compresses of various shapes and methods beneath the obstetric binder; and every now and then a new form of bandage is devised, and pictured in the

books. Those who do not use the binder support their views by arguments against its necessity, and by such as claim that more harm may be done to the sensitive tissues by pressure, than by allowing them to remain unconfined. In my practice I have taken care of patients who have been confined, with and without the subsequent use of the binder, and they generally prefer one well applied.

Now, in my opinion, unless a bandage is properly selected and fitted, it is liable to do harm rather than good; and it is my conviction that as they are often applied they are ineffectual, and may do harm. But the abuse is no argument against the use, and I believe that a patient may be rendered more safe and more comfortable with a bandage than without one. The important results to be obtained occur during the first few hours which follow delivery; after that time, bandages are more matters of convenience than necessity, and need never be applied as snugly. I never use compresses at all, and my experience in observing their situation in the cases which I have seen in the practice of others, for many years, teaches me, that while I have often seen them applied with the greatest tact, and answer every desired indication, they are often liable to slip out of place, and produce other effects than those intended. They may compress the uterus against the back part of the pelvis and lowest vertebræ, and push it to one side, and the condition of the uterus cannot be as well appreciated through their folds. In cases of hemorrhage, and in cases of bad after-pains, where it has been necessary for me to examine them, I have often found this hurtful state of things.

On the other hand, a bandage of straight muslin, wide enough to be securely fastened below the great trochanters, and to pass up to the floating ribs, is not liable to slip, if the first pins be tightly applied at the lower margin, and the pins then pass upward and near together. Meanwhile, a hand holds the fundus uteri lightly in its hollow, and as the pins approach, the hand is removed when the bandage is snugly

drawn, and as tightly fastened as the woman can comfortably bear it, just above the fundus uteri. The bandage thus has two principal features—a secure hold below the trochanters; a secure hold above the fundus; and this pressure takes the place of the hand which has up to this time manipulated the uterus. Often in women rather thin, the outline of the uterus can be seen beneath the well-adapted binder, and it can be readily felt if it be contracted, without disturbing the bandage. Otherwise, it is time to seek for the womb, and study its condition.

Such a bandage meets all the indications; giving that comfort derived from a bandage after tapping, and diminishing the risks of hemorrhage. But if it be improperly adjusted so as to flatten and compress the uterus, and pain the woman, she would be better off without it. The wide-spread conviction among women, that a well-applied bandage assists the restoration of their figure to the desired outlines, is not an argument for its use.

In cases where I have special cause to apprehend metritis, or other inflammatory sequelæ of labor in hospitals, I often order a good flannel bandage, or a broad apron of oiled silk to be applied beneath the bandage, as a comforting and prophylactic poultice which does not need to be changed; an important point in hospital practice.

CHAPTER IX.

OBSTETRIC OPERATIONS IN DEFORMED PELVES.

Case: Contracted conjugate diameter in a primipara; forceps.—*Case:* Contracted conjugate diameter in a primipara; forceps.—*Case:* Transverse presentation in a contracted conjugate diameter; cephalic version; perforation; cranioclast; death of child from premature respiration.—*Case:* Rachitis; contracted outlet; forceps.—Increasing frequency of pelvic deformity in this country.—The same deformity admits of varying results in successive pregnancies.—*Case:* History of successive pregnancies in a patient with contracted conjugate.—Can these measurements be accurately made?—*Case:* Deformity of pelvis; albuminuria; forceps and version failing, delivery effected by craniotomy and the cranioclast; accurate measurement of pelvis by Earle's pelvimeter; pneumonia and metritis.—Pelvimetry.—Difficulty in estimating the size of the foetal head.—Remarks on the ulcerative perforation of the uterus and bladder in Case No. 94.—*Case:* Deformed pelvis; forceps; death from perforation of the uterus by sacral promontory.—*Case:* Contracted pelvic brim; forceps; vesico-vaginal fistula.—*Case:* Arrest of head by promontory of sacrum; forceps.—*Case:* Forceps for contracted brim.—*Case:* Forceps in superior strait.—*Case:* Rigid os and lingering first stage; douche; forceps within the brim.—*Case:* Forceps for febrile symptoms in an epidemic of puerperal fever.—*Case:* Forceps for delay.—The proper time for operating in cases of delayed or obstructed labor.—Delivery of the head through the pelvic brim with forceps.—If it be even possible that the child is living.—Henry VIII. and Napoleon I.—This operation sums up all the difficulties with forceps.—Room for instruments may be obtained by pushing up the head, and the head may be steadied against the brim.—*Case:* Forceps above the brim.—*Case:* Pelvic presentation in an undersized pelvis; room singularly obtained for forceps.—The head may be made to engage by external manipulation.—*Case:* Forceps in an undersized brim.—*Case:* Occiput pressed against the linea ilio-pectinea and rotating from the left acetabulum to near the right sacro-iliac synchondrosis; made to engage by manipulation.—*Case:* Ante-partum hemorrhage; rotation of head before it engaged in the brim; forehead presentation con-

verted by the hand into that of occipital; previous pressure of the head into the brim by the hand.—The head may be made to engage in the brim by altering the mother's position.—*Case:* Movement of descent brought about by changing the position of the mother.

CASE 98.—*Contracted conjugate diameter in a primipara; forceps.*—*Dr. D. McLean Forman, House Surgeon.*

Mary Kennedy, unmarried, primipara, aged 28, born in Ireland, was admitted to Bellevue Hospital April 7, 1867. Has always been healthy, seems well formed, urine not albuminous. Last menstruation June 25, 1866. According to her account the labor-pains commenced on the afternoon of the 5th, were very violent during the night, diminished in frequency and severity during the next day, but recurred with great violence during the night, and subsided somewhat toward the morning. When admitted to the hospital the pains recurred about twice in an hour, and lasted a very short time. The patient's general condition was good in every respect. Vagina moist, and of normal temperature, os uteri dilated to the size of half a dollar, head presenting, membranes had ruptured, according to the patient's statement, on the preceding night. The head was above the brim, foetal heart distinct a little below and to the left of the umbilicus. A Dover's powder was given, and the patient rested well through the night.

April 8th.—Pains infrequent and feeble. Condition of the woman satisfactory. In the afternoon Dr. Elliot's attention was called to her when he made his visit, and he recognized that the conjugate diameter was contracted. Still by pressing the head between one hand placed above the pubes and the fingers of the other introduced in the vagina, he thought that there would be sufficient room if the pains were strong, and therefore directed uterine catheterization. A piece of a No. 8 India-rubber flexible catheter was introduced in utero and left *in situ*. Pains were soon awakened, and the catheter was expelled in one and a half hours. The

pains continuing to act with force, the os gradually dilated, and the position of the head could be recognized, viz., occiput to the left ilium. After a few hours they began to decrease in frequency, when they were revived by a stimulating enema. The patient's condition being good in every other respect than the delay of the labor, she was left to the care of the chief nurse with direction to summon Dr. Forman as soon as the head descended.

April 9th.—On visiting the patient in the morning, Dr. Forman found her tired, but not suffering much. Vagina still moist, os uteri fully dilatable, and Dr. F. thought that the head had made some advance. Uterine contractions still present, but not very powerful. He concluded to wait. But by Dr. Elliot's ordinary visit, some hours later, her condition had become unfavorable. Restless, exhausted, pulse frequent, uterine pains had almost ceased, vagina hot, discharge offensive, and olive-colored. Dr. Elliot found that no advance had been made, the supposed advance being due to the development of the caput succedaneum, which was very large. The woman was now brought under the influence of an anæsthetic, and the pelvis more carefully examined. Passing the finger around the arc formed by the caput succedaneum and parietal bone, the promontory was readily felt, and the conjugate estimated at three and a half inches. The perineum was somewhat rigid, and the vulva not large, and so Dr. Elliot decided not to use instruments to make a more accurate examination, on account of these facts, and the woman's condition, which called for immediate relief. Believing that the head could be delivered by the forceps, he applied them immediately without difficulty; but it was only after being driven to move up the pivot and make considerable compression, and by bringing all his strength to bear, that he was enabled after powerful efforts to pull the head past the obstruction. Once past this—a fact almost as readily recognized by those present as by himself—the remaining steps of the delivery through the inferior strait were

promptly accomplished. The child (a girl) was born alive, but showed traces of the pressure which had been found indispensable for its delivery. Forty hours afterward it died.

April 12th.—The woman has had no unfavorable symptoms since her delivery, and is now doing well. She left the hospital in May, in good health.

Memoranda of autopsy of child by Dr. Janeway, Assistant Curator.—Female child, well formed, two days old. Surface congested. Excoriation on right cheek. Left side of skull considerably depressed by a groove which ran down the parietal bone, by the coronal suture from the anterior fontanelle to the base of the skull. (*Mem.*—This was produced by the promontory.) On removing the skull-cap a large clot of blood was found lining the cavity of the arachnoid, and corresponding to the right parietal bone, and to the middle fossa of the base of the skull on the right side. There appeared a few ecchymotic spots on the posterior and superior part of the left hemisphere. On removing the brain a clot two inches by one escaped from the posterior and superior portion of the left hemisphere, where it had made for itself a cavity, about one-quarter of an inch below the surface. There were several points of ecchymosis around this cavity. The ventricles contained a small amount of serum, and a small clot was found under the lining membrane of the right lateral ventricle. The lower lobes of both lungs were in a state of atelectasis, and some patches were found in the upper lobes. Heart normal; ductus arteriosus pervious, and of large size. Liver weighed $\frac{3}{4}$ iijss. Cells fatty. Kidneys each one ounce. Spleen normal. Brain tissue examined microscopically, and the vessels appeared perfectly healthy, but in the brain substance were a large number of compound granular corpuscles.

CASE 99.—*Contracted conjugate; forceps.*—*D. I. C. Mead, House Surgeon.*

Eliza Ford, aged 38; primipara; admitted to Bellevue

May 4, 1867, in the afternoon. At 6 P. M. the os uteri barely admitted the index finger. *May 5th*, 12 M.—Os fully dilated, membranes protruding. 2 P. M.—Membranes ruptured. As the labor did not advance, Dr. Elliot was sent for in the evening, and arrived at half-past eight. During this interval the pains had become good, and advance was being made. Pulse good. Fœtal heart distinct in the left iliac region. Dr. Elliot recognized a left occipito-iliac transverse position of the head, and diagnosticated deformity of the brim from jutting forward of the promontory. Still, as the head was advancing, and he estimated that the deformity did not preclude the passage of the head, he left, after requesting that he should be notified if necessary. The pains and the fœtal heart continued good during the night, but the head made little advance, and Dr. Elliot was sent for at 7 A. M. *May 6th*. He arrived at 8.15 with Dr. I. E. Taylor. The caput was found to have increased, but the head had not advanced. It was not impacted at all; was readily moved above the brim, and the operation of version quite feasible and elective.

The fœtal heart was audible. It was decided to deliver with forceps, and the bladder having been emptied, the first blade was readily applied in front of the left sacro-iliac synchondrosis, and the second behind the right acetabulum. The pivot was carefully adjusted so as not to allow compression, and the fullest effort made with the forceps as tractors, but without effect. Accordingly, it was decided to make compression also, and a pair of long, straight forceps employed. These were promptly applied, compression made, and the child delivered. As careful auscultation failed to detect the faintest throb of the child's heart, efforts at resuscitation were abandoned. The placenta came away readily, the patient came promptly and satisfactorily from under the influence of the sulphuric ether, and a full dose of ergot was given. 6 P. M.—Vomiting. Hypodermic injection of morphine. *May 7th*, 10 A. M.—Pulse 130. No pain over the abdomen. 6 P. M.—Pulse 122. Respiration 36 and thoracic. Tender-

ness over uterus and abdomen. Lochia small in amount, but natural in color. Continual dribbling of urine. Turpentine to abdomen. Hypodermic injection of morphia. *May 8th.*—Transferred to the medical wards. 10 A. M.—Pulse 128. Respiration 40 and thoracic. Tenderness over uterus and abdomen. Breath peculiarly sweet. Skin moist. Lochia scanty, but natural in color. Urine dribbles still; five ounces drawn by the catheter. From this time the pulse ranged from 120 to 140; respiration 20 to 26. She continued to sink, and died on the 9th at 11 P. M. While in the medical wards the catheter was passed on one occasion, notwithstanding the dribbling of the urine, and about half an ounce of urine was obtained. This contained albumen and some fatty casts.

Autopsy of child six hours after death, before the Class.—No injury to scalp or face. Traces of forceps visible. The scalp having been incised over the fronto-parietal suture and stripped back, blood was seen oozing from an opening in the posterior part of the longitudinal sinus. No blood had been extravasated there, and it was supposed that the injury had been inflicted at the autopsy. Due consideration given to the question of possible laceration by the eversion of the superior edges of the parietal bone during compression of the head. The brain was markedly congested, and a good-sized clot was found in the cerebellum, around which the brain tissue was softened and broken. The thoracic organs were normal, lungs uninflated, serum in pericardium. Thymus healthy. On opening the abdomen a considerable quantity of straw-colored serum poured out. The amount was not sufficient to cause any distension of the abdomen. At first sight the peritoneum appeared healthy, but further examination showed that some of the intestinal coils were slightly adherent to each other, and that some free flakes and strings of lymph could be scooped out of the cavity. Liver very dark, and not syphilitic.

Autopsy of mother, fifteen hours after death, by Dr.

Southack, Curator.—Rigor mortis well marked in lower extremities, not so in upper. Brain and membranes normal; weight ξ xlv. Heart, weight ξ xi.; firm white clots in both ventricles; valves and cavities normal. Right lung, weight ξ xv.; left ξ xiii. Both were of bright-red color, and on section proved to be engorged with blood, notably in their inferior lobes. Liver, weight 3. lbs. ξ 5; normal. Right kidney ξ vss.; left ξ ivss.; normal.

The whole abdominal cavity, and contained viscera, showed flakes of recent lymph, but not enough, or sufficiently organized, to agglutinate together the different viscera. Besides this, there was in the pelvic cavity about one ounce of a sero-purulent effusion. The intestinal canal was distended by gas, but contained nothing else worthy of note.

The pelvic brim gave the following measurements:—Transverse diameter, $4\frac{1}{2}$ inches; oblique diameter, $4\frac{3}{4}$ inches; anterior posterior, $3\frac{1}{2}$ inches.

The uterus reached half way up between the umbilicus and symphysis pubis. Weight, 2 lbs. ξ 13; dimensions, 5 inches from fundus to os externum. Its greatest transverse diameter was 3 inches. The peri-uterine tissue was much thickened, and infiltrated with a sero-purulent effusion. The uterine cavity was lined by a dirty-grayish exudation, which emitted an offensive odor. At parts this could be scraped off, showing the peculiar tissue of the uterus of a normal color, with slight points of injection. On its anterior wall, about an inch from the os externum, in the mesian line, there was an irregular *ulcerated* opening, which communicated with the bladder just behind the bas fond. This opening was about one-half inch long and one-eighth of an inch wide. The distance from it to the bladder was about one-quarter of an inch. The opening in the bladder was about the same size as that in the uterus. The mucous membrane of the bladder was intensely congested, and in an almost gangrenous condition around the fistulous opening. The neck soft, flabby, and patulous, easily admitting three fingers,

showing in its interior similar changes to those observed in the body. Uterine sinuses empty, with no traces of pus. Fallopian tubes presented nothing worthy of note. Corpus luteum of pregnancy in left ovary.

CASE 100.—*Transverse presentation ; cephalic version ; contracted brim ; death of child from premature respiration ; perforation and delivery by Simpson's cranioclast.*—*Dr. Mead, House Physician.*

Mary Foy, aged 30 ; Irish ; single ; primipara ; first experienced labor-pains May 17, 1867, at 12 P. M., and came to the lying-in ward the following morning.

May 18th, 9 A. M.—Os fully dilated, membranes protruded, foetal heart audible, pains strong, transverse position of child recognized. It was decided by the house staff to perform version by external manipulation, as the membranes would in all probability rupture before Dr. Elliot could arrive, and in effect they ruptured so soon as the attempt at version was made, when the elbow passed into the vagina, and the hand having been drawn down, it was found to be to the left. This was at once returned by the house physician, two fingers passed into the cervix, and bi-manual version effected. The head was brought to the brim, and held in position, in the hope that the pains would cause it to engage. 2 P. M.—The pains have been regular, but the head has not engaged. Dr. Elliot saw the case at his visit at 3.30 P. M., and diagnosticated a brow presentation with the left hand between the head and the left sacro-iliac synchondrosis. Digital measurement of the conjugate diameter gave a result of three inches and an eighth. The hand was returned, and during this manipulation, which was very readily and promptly effected, a loop of pulseless funis passed into the vagina. This left only the safety of the mother to be considered ; accordingly, she was etherized, and the head perforated through the anterior fontanelle. The right lateral and

anterior half of the head so pressed against the brim as to forbid the application of a blade of either the cephalotribe or cranioclast in that position, without previously pushing the head away above the brim (in which it had not yet entered at all), and so rendering the operation more serious, or delaying unnecessarily to wash out the brain. Accordingly, the first blade of the cranioclast was passed in front of the right sacroiliac synchondrosis, and the second within the skull, when the head was delivered promptly, and the body rapidly followed. Third stage of labor accomplished in ten minutes. Ordered ergot and morphia, and oiled silk beneath the bandage.

May 19th, 10 A. M.—Pulse 130. Respiration 24. Patient is very despondent, and has been so all the time, partly from shame on account of the illegitimacy of the child, and partly because its father is a negro. 6 P. M.—Pulse 128. Respiration 32. No tenderness over uterus or abdomen. *20th*, 10 A. M.—Pulse 120. Respiration 24. Perspires freely; discharge healthy. *21st*.—Pulse 108. Respiration 30. R̄ Tinc. verat. virid. gtt. iij. quâque tertia. horâ. *22d*.—Pulse 114. *23d*.—Pulse 80. Continued to improve steadily, and discharged well.

Autopsy of child.—On opening the thorax the lungs were found partially inflated, the pale straw-color of the inflated portions contrasting with the mahogany-hue of those still remaining in the foetal condition. The straw-color predominated upon the borders of the lungs, and was scattered in spots over the entire anterior surface. The middle lobe of the left lung had the appearance of being divided into two nearly equal parts, with a clear line of demarcation between the inflated and non-inflated portions. The entire lungs floated when placed in water. A portion of the straw-colored floated like cork; a portion of the other sank instantly to the bottom of the tumbler. The straw-colored portion crepitated upon pressure. A small quantity of yellowish, viscid, tenacious fluid was removed from the trachea and bronchi, and examined under the microscope, by Dr. W. T.

Lusk, and was found by him to consist of amorphous and fatty matter, patches of coloring matter, and flattened epithelial cells, or, in other words, of the constituents of the vernix caseosa contained in the amniotic fluid. The contents of the stomach were of a similar character, with the addition of stomach epithelium, and a considerable quantity of blood-globules. The lateness of the hour and the dim light prevented Dr. Lusk from tracing the presence of the fluid into the remote ramifications of the bronchi.

CASE 101.—*Rachitis ; contracted outlet ; delivery by forceps.*—*Dr. Nicoll, House Physician.*

Bridget Boyce ; aged 26 ; Irish ; seamstress ; admitted to Bellevue January, 1867, in seventh month of her second pregnancy. The first child was born three years ago, after a natural labor. She is thin, of delicate appearance, with marked spinal deformity from posterior curvature. The transverse diameter of the outlet is contracted. The labor commenced at midnight of March 20th. The os was fully dilated, and the membranes ruptured at half-past 6 A. M. on the 21st. The pains were strong and frequent during the day, but after the head had fully engaged in the pelvis it made no further progress. At half-past 8 in the evening Dr. I. E. Talyor was sent for ; the patient was anæsthetized first by chloroform, and after its effects had been produced they were kept up by sulphuric ether. A male child, weighing eight and three-quarters pounds, was delivered by Dr. Nicoll, with forceps, in an asphyxiated condition, occiput posteriorly, but after twenty minutes of effort respiration was established. First stage of labor, six and one-half hours ; second, fifteen hours ; third, five minutes.

Two weeks after the delivery Dr. Elliot examined the pelvis carefully, and dictated the following memoranda :

“The cicatrization, and shortness of the vagina, and the size of the uterus, do not allow the fornix of the vagina to be so pushed up as to enable the promontory to be touched.

But inspection of the back and deep abdominal pressure with the other hand give me the impression that the promontory is drawn backward by the posterior spinal curvature so as to enlarge the conjugate diameter. It certainly is not contracted. By conjoined manipulation the linea-ilio-pectinea can be traced so as to show that there can be no great interference with the transverse diameter of the brim. If there be any, it is in the slight approximation of the left half of the brim toward the median line. On passing down the sides of the ossa innominata it is evident that a contraction of the cavity in the transverse diameter is produced by the approximation of these bones opposite to the acetabula, this being better marked on the left side. The transverse diameter is further influenced by the projection inward of the spine of each ischium; the right spine is more tilted upward than the left. The pubic arch is nearly normal. The transverse diameter of the outlet is diminished by the convergence toward each other of the tuberosities and ascending rami of the ischia. So far as the curve of the sacrum can be reached it is normal. The pelvimeter (Lumley Earle's and King's) indicates that between the tuberosities of the ischia there are two inches and five-eighths; and between the spines of the ischia, a fraction more than two and five-eighths of an inch."

The mother and child did well.

Increasing frequency of pelvic deformity in this country.—Dewees states that he only met three cases of pelvic deformity during his long and brilliant career, and there are many excellent practitioners in our country, in large practice, with a similar experience. Indeed, it is true that the American women are exempt, as a rule, from these deformities. Still the tide of immigration bears with it the same varieties of pelves which are described in the works of German, French, and other authors; while the increasing size of our cities and manufacturing towns, and the difficulties of obtaining a bare subsistence without continuous labor in unhealthy

localities, are producing the same results here which have been so long and so well known elsewhere.

Hence it is not a matter for great surprise that there should have been four cases of well-marked pelvic deformity in the hospital during a service of two months; especially when the well-known law is remembered, that difficult cases of a comparatively rare character display tendencies to group themselves, or succeed each other, in hospital practice.

Practical deduction.—It follows, therefore, that however the American obstetrician may heretofore have been justified in the anticipation that he might escape these difficulties in his practice, those of the rising generation may expect them in a steadily increasing ratio.

The same degree of deformity admits of varying results in successive pregnancies.—No man can follow the histories of successive labors in cases of such pelvic deformity as may be compatible with the delivery of a living child—if small, or favorably moulded so as to fit the diameters—without appreciating first, that he may fail to recognize this condition in a particular labor which has not demanded assistance; and then, that he must be careful of his prognosis for the future, since the next labor may throw a doubt over his well-grounded anticipations, and expose him to misapprehension. Moderate and even serious degrees of deformity present great differences in the results of labor allowed to come on spontaneously. Without claiming that labor may be delayed beyond the customary period of gestation, it is unquestionable that in very many cases it occurs a few weeks before, without attracting much notice, even from the patient. In very many cases the period of fecundation is not known, or may be assigned to a wrong date. Such conditions modify a labor. The difference in the size of a child in different pregnancies is not only felt in the range from four pounds to twelve, and in the probability of increased size in ratio to the number of pregnancy, but a material influence is exerted

by the different size of the head of two children weighing alike, as well as in fortunate adaptations to special requirements. Thorough flexion in one case as compared with imperfect flexion in another; accurate dip of the head in one case instead of an oblique direction; fortunate correspondence of the head to that diameter which may be roomier than the other; varying expulsive forces; differences in the ossification and capabilities for moulding of the head, with many other influences, affect the results of different labors. Some of these we can control in a given case, and some we cannot; while most may be resolved by inducing the labor.

CASE 102.—*History of successive pregnancies in a patient with contracted conjugate.*

In the *first* labor I delivered a living child with forceps, with the left parietal bone so deeply indented by the promontory as to allow more than one finger to be laid therein. Dr. C. E. Isaacs gave chloroform—child now living; no trace of the depression, with its nervous system and intelligence unimpaired. The *second* child presented the breech, and I arrived when the body was born and the child dead. Chin in front, to the right. Dr. Gouley gave chloroform, and I rotated the chin posteriorly with forceps and delivered. The *third* child was smaller, and withholding chloroform—for which she begged piteously—I succeeded, with ergot, in driving a living child through the contracted brim. *Fourth* confinement—January, 1859. No memorandum of the exact number of hours in labor, nor of the time when the waters escaped. By 3 A. M., however, the pains were strong and regular, and the os uteri fully dilated. 7 A. M.—No advance except of the caput succedaneum—head retained by the brim. Ergot given until it produced its characteristic pains. 8 A. M.—No progress. Vagina, which had been cool and moist at 5 A. M., now becoming hot and dry. I was then called and recommended forceps, which the physician in attendance, Dr. Lambert, applied after chloroform had

been given, and made powerful traction until they slipped. As he was suffering from a severe sick headache, which was greatly increased by his efforts at traction, he requested me to deliver, and I reapplied the forceps exactly as he had applied them before, and with great difficulty drew the head through the brim, rotated the occiput in front and delivered a living child, with a laceration upon the cheek midway between the eye and the mouth, about an inch long, produced by the point of the corresponding blade. This was brought together with silver wire at once, but the child died on the tenth day from erysipelas, which unfortunately attacked the face, and was aggravated by neglect of the parents to feed the child properly, the mother having no milk at all. She made a good recovery. My forceps were used.

She was confined for the *fifth* time, September 28, 1861. After fruitless pains for nearly two days, her labor fairly commenced at 9 P. M. The os was then small and dilatable, membranes unruptured, right foot easily distinguishable. Foetal heart best heard just above the umbilicus. As the pains had not done much for her, and she complained of fatigue, I gave her forty drops of McMunn's elixir of opium, and left. Scarcely had I done so, before a violent pain came on, with rupture of membranes. In about an hour I returned, and found a foot just within the vulva. Thinking that the opium might slow the pains, I gave a teaspoonful of the saturated tincture of ergot, but the pains did not slacken, and were strong and frequent. Every thing advanced well, both legs and the breech were expelled naturally and without traction. Drew down a loop of cord, which pulsated in a satisfactory manner. Hoping now that, notwithstanding the deformity with which the previous labors had made me so familiar, the labor might be terminated with safety to the child, I placed the patient in the customary attitude for obstetric operations, with each leg confided to an assistant, and with my forceps at hand awaited the result. The left was the posterior arm, and when it came readily

within reach, I simply finished disengaging it, no traction being necessary. During this time I kept two fingers of my right hand within the vagina, slightly pressing back the perineum, so that I might guard the cord from pressure below, and feel its pulsations, which continued good. Waiting thus for a pain, I found that the right arm did not advance, and had to be disengaged from its position, as it was wedged between the head and the right linea ilio-pectinea. After doing this, as the pulsations of the cord were satisfactory and no struggle of the body for breath had occurred, I waited for another pain, and then readily delivered the head without instruments, and with no more than the customary scoop. Confiding the uterus to an assistant, and finding an excellent funic pulsation, I divided the cord, but to my surprise not the slightest effort at respiration took place. Hot and cold baths, slapping, sprinkling, insufflation, assiduous use of Marshall Hall's method, and the allowing of a half-teaspoonful of blood to flow from the cord, had no effect whatever, and not even a faint effort at respiration ever rewarded my labors, which were unremittingly kept up for forty minutes. All this time the heart continued to beat, though with gradually diminished force, and the pulsations persisted for a few minutes after my efforts were relinquished. The child weighed more than ten pounds, was well formed, free from evidences of injury, with a head quite small in proportion to its body.

The placenta came away readily, and the uterus contracted well. The mother was attacked with varioloid a few days afterward, and seen in consultation with Dr. Catlin. She did well.

I could not explain the cause of the child's death, and deeply regretted the refusal of the parents to allow an autopsy.

External appearances not necessarily suggestive of pelvic deformities.—Of the four women with pelvic deformity

whose cases have just been narrated, three were primiparæ, and presented no external sign whatever which might lead one to suspect that the conjugate diameter was lessened; while the fourth had passed successfully through one natural labor before entering the hospital.

This woman, Bridget Boyce (Case 96), attracted attention by her deformed thorax, her attitude and walk; but I have often presented cases with such outward deformity to the class after perfectly natural labors; and have often shown not only that the pelvic diameters have not been diminished, but that some may even be enlarged; while the shallowness of the rachitic pelvis may have specially favored a rapid labor.

These facts enforce the clinical suggestion that we cannot judge of the pelvic diameters from the outward appearance of the woman, and that we can only rely on careful vaginal measurements by the hand or with instruments.

Still the infrequency of these deformities; the proper reluctance of women to submit to such explorations; and the natural reluctance of the physician to suggest thoughts of danger, when cheerfulness and hope are so desirable, will forever multiply such cases as these here recorded, where the first suspicion of deformity is awakened by delay in the labor.

Delayed labor demands pelvic measurements, if these have not been previously made.—Even then, but too frequently, the contingency of deformity of the pelvis is not apt to be considered as soon as it ought. Whenever a labor is delayed, never mind what may be the apparent cause, the pelvis should be inspected, carefully examined, and measured.

Can these measurements be accurately made?—It is my conviction that these measurements can be accurately estimated in the great majority of cases, and that we should all strive to make these results the rule rather than the exception. The exceptions must, however, exist, and there are clinical reasons why we may not reach our own standard in

special cases. In these measurements, as in the recognition of other physical signs, that man will have the greatest success who is most conscientious, skilled, and faithful in his examination, and who patiently examines all the diameters, and uses all methods to preclude sources of error. Those who know how hard it often is to determine relative shortening in a fractured thigh during the progress of treatment, will be prepared to appreciate the difficulties involved in the accurate measurement of the distance between certain points situated deeply within the body, which can never be seen except at an autopsy, and which are liable to such protean changes. Hence the liability to error is so great, that the best men must expect to fail occasionally; but is this not true of all other diagnoses based on physical exploration? A man can only do his best, and in the event of error he will experience here, as in similar situations, the most lenient judgment from those who know most about the subject. The practical conclusion to be drawn from the liability to error is, that if the consultation should not feel warranted in relying firmly on the result of their examination, they should give the mother and the child the benefit of any doubt.

In looking over my memoranda, amounting to about twenty-seven cases of pelvic deformity in the parturient woman, I find much vagueness in the accurate recognition of the character and extent of the deformity in many, and may have been mistaken in a certain proportion, although nearly all have been seen by others. But I have also the satisfaction of noting that, with time and labor, and the aid of pelvimeters, sources of error have been more and more excluded; while one case furnishes me with the evidence, drawn from the autopsy, that my ante-mortem and the post-mortem measurement of the conjugata vera only differed one-eighth of an inch; and this deformity was recognized in the hospital, after the woman was in labor, with Lumley Earle's pelvimeter; and in the case of Eliza Ford (No. 99), the character and extent of the deformity corresponded with my diagnosis.

CASE 103.—*Deformity of pelvis ; albuminuria ; forceps and version failing, delivery effected by craniotomy ; use of Simpson's cranioclast, as modified by Barnes ; accurate measurement of pelvis by Dr. J. Lumley Earle's pelvimeter ; pneumonia and metritis.*—Bellevue—Dr. Wyckoff, House Physician.

Margaret Dolan, second confinement ; entered the lying-in ward of Bellevue Hospital on the 9th of June, 1864, at 3 A. M. She stated to Dr. Wyckoff that on the 9th of September, 1861, she had been delivered of a living male child, which, she said, weighed seven and a half pounds, and which lived to be eleven months and two weeks old. The labor was very tedious ; two physicians had been with her, one of whom remained with her for twenty-four hours. She remembers nothing that the doctors said, cannot say whether she took an anæsthetic, but knows that she was unconscious during her delivery. Does not know whether instruments were used or not. She had a good recovery, sat up on the third day, and "went round" in a week. Patient states that the waters began to come away on Wednesday, two days before, and that from that time she had been suffering from labor-pains of a "short, stinging character."

First stage of labor completed by 9 A. M. Moderate caput succedaneum. Catheterization necessary, and rendered difficult by pressure of the foetal head. Patient manifests great irritability. She places herself in every possible position on the floor and bed. Frequent cries for assistance. Tenesmus constant and annoying, although the bowels were recently evacuated. Thirty drops of laudanum without effect. Occasional doses of stimulants. Loses self-control. Allows examination with great repugnance. Catches physicians by the hair. Examination of the urine drawn by the catheter reveals a slight albuminous deposit.

After waiting thirteen and a half hours from the period of the completion of the second stage, there having been no

advance of the head during that time, and no change in the restlessness and mental condition of the patient, Dr. Elliot decided that it was hopeless to expect more from the powers of nature, and that she must be delivered instrumentally.

There were present, besides the members of the household, Dr. Storer, of Boston, and Dr. Swift.

The foetal heart was beating. By the use of Dr. J. Lumley Earle's pelvimeter (described in the "Transactions of the London Obstetrical Society," vol. iii., p. 145), the antero-posterior diameter of the brain was made out to be $3\frac{3}{4}$ inches. The post-mortem measurement made it out to be $3\frac{5}{8}$ inches. Had the instrument used been properly made by Mr. Mathews, of Portugal Street, London, as the inventor designed, and as delineated in the "Transactions," even this trifling discrepancy of one-eighth of an inch would not have occurred, but the instrument which I ordered from London only registers quarter inches instead of eighths of inches, as engraved in the drawings of the original instrument. The case was one in which manual measurement could not be accurately employed before delivery, because the caput succedaneum and a small arc of the foetal head dipped within the brim, so as to prevent measurement with the fore-finger, and there remained only such guess-work as might be effected by the introduction of the fore and middle fingers, and thus spanning the portion of the head pressing below the plane of the brim. I admit the possible accuracy that can be thus attained, if one has graduated blocks to slip between those fingers to the metacarpus before their withdrawal; but the instrument of Mr. Earle satisfied me very well indeed in this instance. It is a difficult matter to make these measurements accurately under such circumstances, as every one knows who has tried it, and I made several trials before I was perfectly satisfied to rely on the results. It surprised me to find that it succeeded more to my satisfaction when introduced in an opposite direction to that for which it was designed, viz., with the *concavity* of its curve regarding the

concavity of the sacrum, the woman being on her left side with the knees drawn up.

This measurement having been made, and the woman being under the influence of chloroform, she was replaced on her back, and the bladder emptied with the catheter. The first blade of the forceps was then carried behind the left acetabulum by a spiral curve (it having been introduced in front of the left sacro-iliac synchondrosis), and the other was placed in front of the right sac-il. syn. (the occiput being to the right), and were then locked just within the vulva. All warrantable efforts at traction were then made without avail. The foetal heart was beating to the right, and the hand could recognize the funis on the right of the promontory just above the brim, in a position which rendered prolapse very imminent. The alternatives of version and craniotomy remained, and were decided in favor of version, although that operation was rendered extremely difficult by the long escape of the waters. Efforts at version by external manipulation were fruitlessly made, and I then seized the left knee and brought the left foot to the vulva, but could not turn the child; the head could not be pushed up from within nor from without, nor by conjoined manipulation. It was not at all wedged in the brim, but could not be moved far above the brim. The funis had, meanwhile prolapsed, and its pulsations at last ceased. I then had the head steadied above the brim by an aid, and introduced Blot's perforator. To bring away the head was a tiresome and long-continued task, nor did it pass until most of the parietal bones had been brought away piecemeal, and the frontal and occipital bones completely crushed by Simpson's cranioclast; only the bi-mastoid diameter being left unbroken. Meigs's forceps were found useful in removing broken pieces of the parietal bones. Churchill's crotchet broke up the brain, and delivery was finally effected by the cranioclast. Generally speaking, I can deliver with Churchill's crotchet, but not in this instance, and expecting great difficulty, I was provided with Scanzoni's

cephalotribe. But it was not needed, and the cranioclast worked admirably. The operation was fatiguing, and when finished there was not a trace of brain left in the remains of the cranium. Contraction immediately followed. A large and healthy placenta came away in thirty minutes. No hemorrhage. Child weighed, in its mutilated condition, six and a half pounds. The whole time occupied in the delivery was two hours and a half. Ergot, opium, and stimulants were given. The patient came promptly and satisfactorily from under the chloroform.

June 10th.—Patient declares herself well. Pulse 80–90 during the day. Says that she is a little sore. Urine drawn. Has slept easily. *During the day she managed to get out of bed, while the nurse was in the next ward, and walked on her bare feet to the water-closet, before she was seen.* *June 11th.*—Found leaning over her bed to arrange some things beneath. Says that she slept well, but complains of pain in the left side. Pulse 100. The evening before, $\frac{3}{4}$ xxvj of urine were drawn. Small amount during the night. Uterine discharge slight. Ordered tincture of aconite and hypodermic injections of morphia. *June 12th.*—Signs of pneumonia over base of left lung. Pulse 124–130. Decubitus on right side. Face flushed. Short, painful cough, no expectoration. Abdominal tenderness when deep pressure is made. Lochia slight, offensive, and leave a yellowish stain. No swelling of external genitals. Bowels moved. Urine slightly albuminous. Oiled muslin jacket to chest. Aconite and the hypodermic injection of morphia. Diet nutritious. Stimulants.

June 13th, 12.30 P. M.—Died. Pulse was full and strong at 11 P. M. For eight hours before death her respiration had been labored. Short, sighing inspiration and long expiration, with some mucous rattle in the throat. Pupils normal. Respiration never below 16 to the minute. Under the aconite the pulse fell, June 12th, at 8 P. M., from 124 to 108, and ranged afterward from 104 to 110, rising once to 112.

Autopsy.—*June 14, 1864.*—By Dr. Brownell, in the pres-

ence of the house-staff, and Dr. Elliot. Weather warm. Body very fat. Great discoloration of skin everywhere. Face greatly congested. Abdomen greatly distended with gas. Peritoneal surface perfectly smooth, with no signs of inflammation. About an ounce of clear fluid, however, in the cavity. Upper part of vagina much congested. No pus seen in uterine sinuses, and very little blood. A very small quantity of pus in right Fallopian tube; more in the left. Lower lobe of left lung solidified by pneumonia, except along the lower edge; weight, 1 lb. 4 oz. Right lung healthy; weight, 1 lb. 1½ oz. Spleen large, healthy-looking; weighed 1 lb. 5½ oz.

Pelvis.—Anterior posterior diameter of brim, three inches and five-eighths. Transverse of brim, four and a half inches. Outlet undiminished.

Uterus.—Microscopic examination by Dr. Birkhead. Pus in uterine sinuses. None under the peritoneum of the broad ligament. *Heart*.—Slight fatty degeneration of the muscular fibres.

Liver and Kidneys.—Prof. A. Flint, Jr., reported that “scrapings from the cut surface of the liver presented, under the microscope, a field filled with fatty granules and globules, with the liver-cells filled with fat.” Dr. Flint also says: “I send you a sketch of the appearances in one of the kidneys. The convoluted tubes are filled with granules, which have not, however, the bright appearance characteristic of fat. The appearances in both kidneys are the same. In the field are also seen granules, and the renal cells filled with granules.”

Pelvimetry.—Not only has Lumley Earle's instrument given me satisfaction in this and in other cases, but Van Huevel's instrument, which is more widely known, is capable of equal accuracy. I have had much satisfaction in its use in measuring the conjugate diameter of the brim, and it is the only one I have ever used which is capable of measuring all the diameters of the pelvis. When the true conjugate is not

obstructed, the instrument devised by my friend Dr. Samuel W. Francis has given me satisfaction. Lumley Earle's pelvimeter has not seemed to me of value in the transverse and oblique diameters. In the former, the instrument devised by Dr. King is the best with which I am familiar; but I do not think that I shall try it any more in measuring the conjugate, as I am satisfied that it is badly adapted to that measurement, and inferior to other pelvimeters. In the use of Van Huevel's instrument, as in Earle's, a skilful assistant is also very desirable.

Still the difficulties are so great, that we find Churchill indorsing with his approval a quotation from Velpeau in reference to the uncertainty of pelvimetry. When we pass from the text-books to the records of clinical cases, and the discussions of medical societies, we find, as might be anticipated, a larger latitude given to the liabilities to error.

Our clinical records show that the autopsy has proclaimed the error of one excellent man—as in the case of Villeneuve—who relied on external measurements, and who made the customary approximative deductions for the thickness of the soft parts of the bones, but was deceived by the unusual thickness of the sacrum. Most practical men, however, will be willing to appreciate the increased risk of this method of examination; but we find that the autopsy will also disclose the error of another first-class man—as in the case of Lehmann, reported by Rodenberg—who relied on internal measurement by the finger alone, and who was deceived by the unexpected difference between the diameters of the *conjugata vera* and the *conjugata inclinata*.

For this latter, and similar sources of error, the majority of men would be less prepared with excuses; for, perhaps, by common consent, the finger of an educated obstetrician like Lehmann is considered to be the best pelvimeter. Indeed, but very few of the many ingenious instruments devised for this purpose, and so well illustrated by Lenoir, have been recommended by others than their inventors.

It is true that no measurement can be relied on that is not appreciated by the educated finger; but I deny that accurate measurements can be made by the hand alone of some of the pelvic diameters, and I claim that the skilled use of the instruments will confirm and enhance the accuracy of the measurement of others made by a competent man. They will never, however, supply the places of patient bedside education of the hand. In confirmation of these views, I point to the shadowy and unsatisfactory rules that are given for the measurement of the transverse and oblique diameters of the brim by the fingers alone. The measurement is so unsatisfactory, that those who rely on the method take comfort in reflecting that the chances of deformity in these diameters are less than in the antero-posterior.

In the cases of Mary Kennedy and Eliza Ford (Nos. 98 and 99) the hand was relied on for the measurement, and pelvimeters were not used, because I felt sure that at the worst the forceps would be sufficient for the delivery, as indeed they were; while in the case of Mary Foy (No. 100) I entertained no doubt whatever of the accuracy of my measurement, unless I were deceived as Rodenberg was. Moreover, in the case of Mary Kennedy, other controlling reasons for not using pelvimeters are stated in the history, and are applicable to the case of Eliza Ford.

Difficulty in estimating the size of the foetal head.—We find in text-books, and in monographs, tables which give the approximative diameters of the foetal head at various periods of its development, and differences of a quarter of an inch are spoken of with great positiveness. I guide myself by these tables, but with a wide margin of allowance; and greatly aid my diagnosis of the size of the foetus by careful abdominal manipulations, and measurement of the head—if it present—by conjoined manipulation with the fingers of one hand in the vagina, and those of the other pressing upon the head above the pelvis. In this way we can form some

idea of the size of the head in a given case, before labor sets in, and of its relations to the maternal pelvis. In the five cases in which I have induced premature labor for deformity of the pelvis, the head of the viable fœtus has always been able to pass the contracted diameters without any more difficulty than I expected or was prepared for.

In the cases of Mary Kennedy and Eliza Ford (Nos. 98 and 99) this manipulation convinced me that the heads could pass without recourse to craniotomy, when as yet no symptoms of danger to the child or to the mother had developed themselves, and determined me to allow further time for the moulding of the head and the influence of the expulsive forces. And if version be decided against, and the time for premature labor has passed, such, in my opinion, is the proper practice in well-watched cases where there is only one diameter contracted, and that one measures three inches and a half.

I could point to several cases of natural labor under such circumstances in my experience. Still, with the best care, the size of the fœtal head and its adaptability to the pelvis is the difficult problem in all cases where the deformity does not preclude the passage of the bi-mastoid, or incompressible diameter; and compared with this uncertainty the difficulties of pelvimetry fall into the second rank.

The perforation of the uterus and bladder by ulceration, in the case of Eliza Ford (No. 99).—The display of this accident by the autopsy surprised me very much, as it was unanticipated, and not foreshadowed by clinical signs. Moreover, there had been nothing in the labor to specially threaten this risk. The head was never impacted, the bladder never over-distended, and it was recorded in the history that the head was freely movable above the brim of the pelvis at the time when the operation was resorted to; that the operation of version was feasible, elective, and considered by Dr. Taylor and myself, though we decided upon forceps. Nor

was the posterior border of the symphysis sharper than usual. The case, however, is not absolutely unique in my experience, as I have the memoranda of a case, under my observation nine years ago, where the posterior wall of the cervix uteri was perforated by an ulcer produced by the pressure of a sharp promontory in a contracted brim, and the commencement of a similar lesion could be seen behind the symphysis.

CASE 104.—*Deformed pelvis; forceps; death from perforation of uterus by sacral promontory.*—Dr. George S. Hardaway, House Physician.

Hannah McGuire; aged 18; Irish; primipara; married(?); taken with labor-pains at 7 A. M., January 16, 1858. At 8 A. M. examined by Dr. Hardaway, who noticed that the pains were weak, head presenting, and entirely above the ilio-pectineal line; os soft, and had not yet commenced to dilate. Pelvis under-sized, but difficulty therefrom not anticipated. Labor progressed slowly until 9 P. M., when membranes ruptured, and most of the waters escaped. Os then larger than a Spanish dollar, and dilatable. Anterior fontanelle felt on the right side of the pelvis; sagittal suture passing transversely to the left; posterior fontanelle not recognized. Fœtal heart distinct in left iliac fossa. Pains continued throughout the night, but were not strong. At 11.30 P. M. she was brought under the influence of chloroform, and after this, though the pains continued, she remained comfortable until 3.30 A. M., when she began again to suffer with the pains. She vomited frequently, and had an unnatural stare.

Contraction of the antero-posterior diameter of the brim was thought to be the cause of the delay. 7.30 A. M., January 17th.—Countenance has changed very much since labor set in. It is pinched, expressive of anxiety, and she looks much older. Head has made no advance. Vagina moist and cool. Pulse about one hundred.

My visit.—At this time I was sent for, and saw the pa-

tient before meeting with Dr. Hardaway, or hearing the report of her condition during the night. I had, however, seen her in the ward on the previous day, though without having had my attention especially directed to her. I was much struck by the change in her countenance just described. Her pulse at 9.30 was 120; her abdomen a little tender; vagina cool, moist, and the discharge perfectly normal. Os uteri, in my judgment, sufficiently dilatable for any mode of delivery. Head resting above ilio-pectineal line, and detained there by diminution of the antero-posterior diameter of the brim. *Sufficiently movable for version or any operation.* Fœtal heart beating. The impression made on me was that delivery was called for imperatively, and I preferred the use of forceps.

Consultation.—In the consultation which followed, a difference of opinion arose, contraction of the brim not being admitted as the cause of the delay, which was attributed mainly to feebleness of the pains. After urging my views strongly, I deferred and acquiesced in the exhibition of ergot, which was given to the extent of twelve grains, in four doses, by which time its specific effect began to appear.

At 3 P. M., or about four hours after the first dose, the woman's condition was not improved. She vomited more and looked badly. The temperature of the vagina was little altered, the discharge was perfectly natural, the head now pressed more firmly in the brim. Immediate delivery was considered advisable.

Operation.—She was brought under the influence of chloroform by Dr. Andrews, and I proceeded to apply forceps. The first blade passed rapidly in front of the left sacro-iliac synchondrosis, the other, without difficulty, behind the right acetabulum, allowing an interval for a long uterine contraction. They did not slip, and I rapidly drew the head through the brim, rotated the occiput anteriorly, and delivered a living male child, weighing six pounds, without lacerating the posterior fourchette.

In separating the os uteri for the introduction of the first blade, I felt a warm stream on my fingers, and, holding them up, showed them to be covered with a darkish fluid, no trace of which had previously been met with in the vagina.

The placenta gave no trouble.

Appearance of child.—The head of the child presented a deep indentation opposite the fronto-parietal suture of the left side, where it had been pressed against the promontory of the sacrum, and that bi-parietal diameter was additionally lessened by a slighter depression at the opposite point, confirming the diagnosis of deformity at the brim.

Subsequent management.—A bandage of oiled silk was now applied under the binder: $\frac{3}{4}$ j of whiskey, with gr. ss of morphia given, the patient removed to another ward, and ordered $\frac{1}{4}$ gr. every hour until she slept; but she only got four doses during the night. She slept some, but not well, and vomited frequently.

January 18th.—When seen in the morning by Dr. H. she was not vomiting, and was given gr. ss of morphia, which she showed no disposition to reject. Pulse 134. Respiration entirely thoracic; great tenderness over the abdomen, with tympanitis. Ordered $\frac{1}{4}$ gr. every hour.

10 $\frac{1}{2}$ A. M.—I saw her when she was gulping up every thing she swallowed. Ordered emp. vesic. 6 x 6 to abdomen; and that she should be brought under the influence of opium.

To check her vomiting Dr. H. gave her gtt. xv. of hydrocyanic acid in four doses, half an hour apart, without any influence on regurgitation. She was given one grain of morphia every hour by the rectum, and it was attempted to vesicate the epigastrium by Granville's lotion in order to apply morphine endermically; but the lotion was not good, and did not vesicate till 5 P. M., when a grain was applied to the blistered surface. At 1 P. M. the pulse was 144. 9 P. M.—Pulse 176; respiration 34, entirely thoracic; constantly regurgitating, even the pellets of ice, which were alone given by

the mouth. Under the influence of the opium, she bore strong pressure over the abdomen without complaining, moved herself in bed without pain; said that she suffered none; pupils contracted; wandering a little in her mind. Lochia had ceased. Warm poultice to the vulva. 11 P. M. —Regurgitation has ceased, having only brought up one mouthful since 9 o'clock. Pulse 160, scarcely possible to count it at the wrist. Respiration 36. Moaning. Until 1 A. M. (19th) she continued to take one grain of morphia per rectum every hour with no effect on the respiration, which continued about the same until death. The pulse could not be counted at the wrist after midnight; after which time she was quiet; did not vomit any more. Died 3.15 A. M., 19th.

The child seemed likely to do well, but sank and died during the night of the 19th.

Post-mortem by Dr. Lambert, one of the senior assistant physicians, twenty-nine hours after death.

Body well nourished. Cadaveric rigidity well-marked. Greenish-yellow discharge from the nose and mouth. No discharge from the vagina. Head not examined. Chest.—Lungs healthy; right slightly adherent laterally and posteriorly. Heart weighed about nine ounces, tissue firm, valves healthy, right auricle and ventricle moderately distended with blood, left auricle and ventricle nearly empty. The abdomen contained about two gallons of a turbid-brownish fluid; near the symphysis pubis there were also several flakes of false membrane. Intestines moderately congested. No signs of general peritonitis present. Liver rather soft and apparently fatty, as indeed it proved to be under the microscope. Kidneys examined by the microscope, and found healthy. In the left iliac fossa there was an abundant infiltration of lymph. *Uterus*.—This was removed entire, and taken by me to Prof. Alonzo Clark, for examination. It presented externally no marked evidences of peritonitis, and was firmly contracted.

In the median line posteriorly, just above the junction of

the body with the cervix, was a perforation about the size and shape of the button-hole of a waistcoat. The edges were clean. Extending downward from this in the mesian line of the posterior wall, *internally* for about one inch, was a solution of continuity, involving about one-third of the thickness of the organ. Anteriorly in the mesian line was a loss of structure, similar in character, but less extensive. The uterine sinuses displayed coagulated blood when laid open.

No other injury to structure was observable, and these were, it will be noticed, just at the points where pressure was experienced from the head on the promontory and symphysis.

Microscopical examination.—Careful examination by Dr. Clark decided these solutions of continuity to have resulted from pressure and not from laceration, and therefore there was true perforation (not rupture) from death of tissue. The fluid lining the inner uterine wall displayed pus under the microscope, and on carefully removing some fluid from the uterine sinuses with clean instruments, and from fresh incisions, perfectly-formed pus-globules were found in great numbers. To the naked eye, these sinuses did not appear to contain pus.

Beneath the peritoneal covering of the broad ligaments, in places pointed out by Dr. Clark, pus was detected with the microscope. On dividing the Fallopian tube, pus could be readily squeezed from the cut end.

Pelvis.—This, with the uterus, was shown to the Pathological Society, and proved to present the recognized deformity—the antero-posterior diameter of the brim measuring three inches, *and the promontory being noticeably sharp*, as well as turned a little to the right.

Post-mortem examination of the child.—In removing the scalp, a portion (about two inches in diameter), overlaying the external angular process of the frontal bone and parts adjacent, which had been pressed against the sacrum, was found infiltrated with blood. Rather less than one drachm

of blood was effused between the dura mater and the upper part of this (the left) parietal bone. Dura mater not markedly congested. Pia matter congested. On removing the brain, a large clot of blood, weighing about one and a half ounces, was discovered beneath the cerebrum on the left side, encroaching on the cerebellum.

Remarks.—I have always thought that the commencement of this lesion occurred on the morning of the 17th, and have regretted that my desire for a more timely operation was not carried into effect, though it might not have modified the result.

It is interesting to note in this case also, that there was no impaction of the head in the brim. It was so movable as to have rendered the operation of version possible and elective. The reason why the use of ergot was urged, was mainly on account of the conviction that the head could mould itself; and pass through the pelvis, and the history of the case details the facility with which I drew the head through the brim without grooving it, when the operation was decided on, notwithstanding that this was proven only to measure three inches in the conjugate; a fact which justified the hope that the head was small enough possibly to pass unaided. The possibility of delivering with forceps through such a diameter has been denied, but facts are stronger than theories.

In my own experience there has occurred but one other case in which the bladder has sustained serious lesion. This was very slight, and cured by an operation. Like the others, it occurred in a site where the forceps had never been.

CASE 105.—*Contracted pelvic brim; arrest; forceps; vesico-vaginal fistula.*

March 28, 1858.—Mrs. Barnett; aged 32; fell in labor with her second child; under the care of Dr. O'Rorke. 6 A. M.—He found the membranes ruptured, and that she had been in labor ten hours. Os fully dilatable. Presenta-

tion cranial, and above the brim. Fœtal heart beating. Mother's condition good. Twelve hours after this, at Dr. O'Rorke's request, I saw the patient with him. Dr. Kiernan was also present. Mother's condition good. Abdomen a little tender on pressure. Fœtal heart and uterine souffle distinctly heard at the same site, viz., just below the umbilicus on the left side. Pains growing weaker. Outlet well formed. Antero-posterior diameter of brim seemed a little over three inches. Head not engaged in brim. Sagittal suture transverse. Fontanelles not clearly to be distinguished. Pelvis shallow. It was decided to apply forceps, because of pelvic contraction, non-advance, and suspicious fact that the first child was still-born. Chloroform by Dr. O'Rorke. Forceps applied over the oblique diameter, extending from left orbit. Having exerted all my strength to no purpose, Dr. O'Rorke relieved me, and advanced the head; as rotation commenced, the forceps slipped somewhat, when, having reapplied them, I resumed my tractions with all my force, and withdrew the head. The child gasped when born, but could not be revived. Perineum lacerated. Placenta came away well. *March 29th.*—Pulse 120. Pain over uterus. Blister 6×8 and mercurial ointment, with opium internally. The traction made by the forceps in this case was very great, and Dr. O'Rorke expressed his surprise that the instrument could bear it. She recovered well, but complained of water dribbling from her if she stands, or lies on either side. When she lies quietly on her back there is no flow, and she can retain her water all night. I made an examination, which, however, was not very thorough, as I desired to send her to Bellevue, where she could have better opportunities for treatment. My colleague, Dr. Taylor, made two thorough explorations, and discovered, on the last occasion, a small opening to the left of the vesical termination of the urethra, in which a small probe can pass. The fistula was operated on by Dr. J. J. Crane, and completely cured.

Per contra, I have delivered in many cases where perma-

nent and constant pressure must have been made for a long time, and no evil result whatever has followed:

CASE 106.—*Arrest of head by promontory of sacrum; forceps.*

Mary Conroy; aged 26; first pregnancy; in labor from October 28th, 5 A. M., 1857, to 29th, 9.30 A. M. Dr. J. R. Buist, House Physician. In this case the head was retained in one place by the promontory of the sacrum for fifteen hours, when I delivered a male child weighing ten pounds, with Simpson's forceps. Both mother and child did well.

CASE 107.—*Forceps for contracted brim.*

Catherine White; aged 18; first confinement; Bellevue. Dr. James H. Bird, House Physician. In labor from March 18, 1859, 10 A. M., to March 19th, 12 M. The head was grasped between the promontory and pubes in a contracted antero-posterior diameter. Delivered with forceps a living boy weighing six pounds ten ounces. Chloroform.

CASE 108.—*Forceps in superior strait.*

Ann Mahony; aged 33; first labor; from May 26, 1857, at noon, till May 28th, 6 A. M. Dr. John C. Draper, House Physician. In this case the head was arrested in the brim, and I finally delivered a female child weighing six pounds, with Simpson's forceps. Mother and child recovered perfectly.

CASE 109.—*Rigid os and lingering first stage; douche; forceps within the brim.*

Elizabeth Warren; aged 25; first pregnancy; in labor in Bellevue Hospital, from November 22, 1857, at 11 P. M., to November 25th, 9 A. M. Female child; eight and a half pounds. Dr. C. F. Hasse, House Physician.

When first seen by Dr. Hasse, the membranes had pre-

maturely ruptured, os dilated to the size of a two-shilling piece, head in first position, pains irregular, with scarcely any effect on cervix. An emetic and enema were followed by an anodyne.

November 25th, 2 A. M.—Os dilated to about the size of a fifty-cent piece, rigid and slightly swollen; vagina becoming hot; two warm douches, with very favorable effect. 7 A. M. —Almost complete dilatation; foetal head still obstinately engaged just within the brim of the pelvis. Fearing further risk to the mother and child from the continued pressure, I delivered the latter, living, with Simpson's forceps. The mother, who was an hysterical woman, was for some time inclined to puerperal mania, but finally recovered perfectly.

November 28th.—The child, which was doing well, died suddenly, in a convulsion.

In the following case we decided upon an early delivery with forceps, in order to ward off dangers which threatened our patient, and to which those with lingering labors may be especially exposed, but yet without effect:

CASE 110.—Forceps for febrile symptoms in a puerperal fever epidemic.

Ellen Fagan. Bellevue Hospital. Dr. E. B. Barrett, House Physician. Waters discharged March 26th, 7½ P. M. At 10½ P. M. pains not very efficient, pulse going up, and vagina hot. I was sent for. Found the head just emerging in the superior strait, first position. Consulted with Dr. B. Fordyce Barker, and delivered with forceps at half-past 12. Child living; male; weighing nine pounds. No laceration of perineum. Chloroform. Died on the ninth day, from puerperal fever. Forceps decided upon in the hope of diminishing the risk from an epidemic of puerperal fever which then threatened all our patients. We have seen cases of natural labor in which the fatal symptoms have appeared before delivery.

The following case illustrates, among other facts, the risk to which the child's eye would have been subjected without the pivot, or some corresponding contrivance :

CASE 111.—*Forceps for delay.*

Dr. Janes sent for me on the morning of the 29th of April, 1860, to a primipara about four feet high, who had been in labor about thirty-six hours. The waters had been discharged about twenty-four hours before, and no progress had been made for the last twelve. The outlet was well formed, but the conjugate diameter somewhat undersized. The head presented, posterior fontanelle between the symphysis and acetabulum, movement of descent not completed. Os uteri thin, rigid, and closely embracing the head; but this, in my opinion, was not the cause of the delay. Considering the duration and character of the labor, the patient's condition was entirely satisfactory. Foetal heart distinct, in the usual place on the left side. She preferred not to take any anæsthetic, but when the blades were introduced and locked, and the strong tractions necessary to draw the head through the brim were commenced, she made so great an outcry that we were glad to stop until Dr. Janes had brought her under the influence of chloroform, when I delivered a living male child of average size, very slightly cut over the upper part of the right frontal bone, which was very convex. The point of the corresponding blade reached just to the eye, which was unharmed. In this case a consultation had decided to apply forceps on the evening before, but it was not found practicable. Both did well.

The proper time for operating in delayed and obstructed labor.—It is easier to lay down rules than to seize the fortunate clinical moment. After a man has seen enough of difficult midwifery to have anxiously watched in consultation for the fitting moment, to have finally operated, and then to have regretted that he had not waited longer; and,

on the other hand, when in like circumstances he has regretted that he did not operate before; he at last understands the perplexities of the question.

In the case of Mary Kennedy (No. 98), the operation might as well, or perhaps better, have been performed a few hours earlier; but, upon the whole, it is a satisfaction to reflect that full time was given to nature, and that the operation itself was so managed as to give the child the best chance in the method decided upon.

In the case of Eliza Ford (No. 99), the ulceration of the uterus and bladder demonstrates that it might have been better to have operated before; but when Dr. Taylor and I met in consultation in the morning, there was nothing in the woman's condition, or the position of the child, to make us anticipate that her chances of a good recovery were less than those of Mary Kennedy or Mary Foy.

In the case of Mary Foy the time for version was well selected by the house-staff, but that was a case better adapted, perhaps, for pelvic than for cephalic version, on account of the pelvic measurement, and the original presentation.

Each case of labor is a problem in itself, and no reflection may be more disagreeable than the thought of an operation which might possibly have been dispensed with, except the regret that one had not been undertaken before.

I believe, however, that among practitioners competent and accustomed to perform obstetric operations, the chief tendency to evil results from delay, and trusting to the efforts of nature; an error to which they are inclined by a knowledge of the powers of nature, and a familiarity with the difficulties and the risks of operative midwifery.

Practitioners not accustomed to perform obstetric operations, but well educated in the theory, are more liable to err in the opposite direction from exaggerating the necessities for operative interference, and from underrating its risks. Especially may this be true of those who have fortunately been successful in a limited field, and see no reason to anticipate

other results. "He jests at scars who never felt a wound."

In competent hands the operation had better always be performed too soon than a little too late.

Delivery of the head through the pelvic brim by forceps.—This operation is always difficult, always involves risks to the mother and to the child, and demands the greatest skill and caution. It may be an operation of necessity when the head cannot be pushed back in the uterus, so as to admit of version, and the child be living; it may be an operation of election when the head is readily movable, or when the child is certainly dead.

If it be possible that the child is living.—If the death of the child be placed beyond a peradventure, then in cases of any special difficulty the child had better be delivered—as a law—by the perforator; but if there be even a hope that the child still lives, even though the foetal heart has ceased to beat—as a law—delivery should, undoubtedly, be effected with the forceps or by version.

It is true that the child's life may be placed in great danger by this operation, when undertaken from the best motives and by the best men, and the risk is in direct ratio to the elevation, when other things are equal; and while this additional risk is a motive for deferring this operation in many cases, it offers no justification whatever for deferring it too long, or for resorting to any deadly operation until both forceps, and version, and time, and all other methods, have been tried, and perhaps tried again.

It is a painful task to be obliged to struggle for the life of the child under circumstances which scarcely leave a hope of success, or to be forced to select operations involving more risk to the mother, but there is nothing else for us to do than to try to save the lives of mother and child, however sad the task may be.

Henry VIII. and Napoleon I.—If it be really true that Henry VIII. and Napoleon I. were asked, by the physicians in attendance on Jane Seymour and the Empress, whether the life of the mother or of the child should be saved; then, indeed, does it seem to me that they asked improper questions of those incompetent to judge. The great Napoleon's reply was the most admirable that could have been made; "Treat the empress as you would the wife of a grocer." "Save the child," said the horrid King; "I can get wives enough."

The only accoucheur who might have been justified by history for the destruction of the child born in the purple, was Musa, who was sent for to the mother of Nero—*pro partu accelerando*.

This operation sums up all the difficulties with forceps.
—Delivery by forceps from above the brim may combine all the difficulties that can be met with in forceps operations, and may be motived by all the causes which determine their performance when the head is lower down, as well as by those which can only exist in the brim itself. The essential requisites are, that the cervix uteri should be sufficiently dilated or dilatable, and that there should be sufficient room for application of the instruments.

There is a difference of opinion regarding the space demanded, but we have seen that delivery can be effected under favorable circumstances when the conjugate measures only three inches. Below this diameter success could scarcely be hoped for, and the operation is facilitated or rendered impossible by the size of the instruments selected, and the size and position of the child's head. The first contingency is under the control of the operator, the second may defy his efforts, even when the diameters are roomy enough. It may not be possible to pass one blade to its place from the fact of the head pressing too closely on the brim in that direction.

Room for instruments may be obtained by pushing up the head, and the head may be steadied against the brim.

CASE 112.—*Forceps above the brim.*

A fortunate example of delivery under the most difficult circumstances occurred about the year 1856, when it becoming, in the opinion of Dr. I. E. Taylor and myself, desirable to deliver a woman in Bellevue, in whom the child's head floated above the pelvic brim, I proceeded to turn in the presence of Dr. Taylor and the house-staff. Of those present, I remember Drs. John C. Draper and Bolling A. Pope. Having introduced my left hand entirely above the pelvic brim, I found that the wrist accidentally steadied the head by pressure on the chin. Calling for Dr. Simpson's forceps, without removing my hand, I delivered a living child. Mother did well.

In the case of Mary Foy (No. 100), the head pressed against the anterior and left lateral half of the pelvis, so that the cephalotribe could not be applied on that side without pushing the head so far above the brim as to make the operation one of great difficulty and increased risk to the mother. A similar case is recorded elsewhere.

This obstacle to the application of forceps is not confined to cases where the head must be delivered through the brim. It may occur during any stage of the passage of the head. For cases of this character, where the head cannot be so moved as to allow the forceps to pass, Ritgen and Mattei have devised special forceps, of which the former admits of locking the blades when one has not been able to pass as far as it should, and the latter can be locked when the blades are not exactly opposite each other, or introduced to an equal depth. Both instruments may be serviceable, and even successful, when other instruments have failed.

In the following case, if I had made a determined and forcible effort to push up the head, the child might possibly have been delivered alive.

CASE 113.—*Pelvic presentation in an under-sized pelvis; room singularly obtained for forceps.*

Jane Holland, aged 24; second child. In labor in Bellevue from February 18th, 2 A. M., to February 19th, 2.45 A. M. Drs. F. A. Burrall and N. Barrows. Child still-born, weighed $7\frac{3}{4}$ lbs.

Two years since she was confined with an eight months' child, "cross-birth," lived three weeks. Now at full term.

February 18th.—While preparing for bed, membranes ruptured without previous pain. Came immediately into lying-in wards, when the left foot was distinguished high up, back of foetus to left acetabulum. Dr. Elliot summoned, and arrived at 1 A. M., February 19th, just as the knee had reached the vulva. 1.40 A. M.—Pains being very severe, chloroform given moderately, and in a few minutes the body of the child passed. After the hips had passed naturally into the world, a loop of cord was brought down, which could not be felt to pulsate. Motions of the child but an instant before had given signs of life, and showed its danger.

Arms being delivered, and the head refusing to yield to traction or the customary manipulations in these cases, Dr. Elliot passed the first blade of his forceps promptly to its position, but the large head of the child so pressed against the right pelvic brim as not to afford any space for the second, and all hope of saving the child soon fled.

The perforator was sent for, and while making considerable effort to force a dull instrument through the occipital bone, Dr. E. felt the head rise sufficiently on the right side to allow the passage of the second blade, when, dropping the perforator, he applied his forceps, and delivered with difficulty. The uterus not being promptly followed down, hemorrhage occurred to an extent which demanded sharp treatment. Did subsequently perfectly well. Child still-born, weighing $7\frac{3}{4}$ lbs.

The head may be made to engage by external manipula-

tion.—We not unfrequently meet with cases of delayed labor where the head does not satisfactorily engage in the brim, and great assistance may often be given by pressure with the hand placed over the mother's abdomen, so as to alter the position of the child's head, increase the flexion, or force it into the brim. The following cases illustrate this manœuvre.

CASE 114.—*Forceps in an under-sized brim ; rigid os ; previous pressure of the head into the brim by the hand.*—*Dr. Charles H. Ludlum, House Physician.*

Mary Leonard ; Irish ; aged 33 ; Bellevue. The pains came on at 7 P. M., May 24, 1866. Since she became pregnant she has never felt well. Has had more or less cough, and gradually grown weaker. The os was found high up in the posterior part of the pelvis, barely admitting the index-finger, and exceedingly hard. The pains continued frequent and severe, and by 2.30 P. M. the os had begun to dilate, admitting the tip of the middle finger by the index.

At 4.30 P. M. Dr. Elliot saw the patient, and found the os slowly dilating, having then attained the size of a twenty-five cent piece. It was still very unyielding, although her pains were agonizing in the extreme, causing her to shriek, and to try every imaginable position for the sake of relieving herself. Dr. E. made out a vertex presentation, the head being above the brim and overhanging the pubis. Besides, he found the brim of the pelvis somewhat under-sized, the sacro-vertebral angle being more prominent than normal. As the os was now dilating somewhat, and the membranes unruptured, he concluded to leave the case to Nature for a time, promising to call again at 7 P. M. The pains were still very violent, and seemed to be wearing out the patient's strength. At 6.30 P. M. the os had dilated considerably, but the rim, during a pain, felt like cartilage, and the cervix was quite œdematous.

At 7 P. M. Drs. Elliot and Taylor arrived and confirmed the diagnosis. As the os had now dilated pretty fully, it was decided to rupture the membranes and cause the head to engage in the superior strait. Dr. Elliot ruptured the membranes and succeeded by abdominal pressure in forcing the head into the pelvic brim. Drs. E. and T., on consultation, decided to leave the case to nature for a couple of hours, when if little progress had been made, forceps should be used. On their return at 10 P. M. but little progress had been made; the lips of the os, especially the anterior one, had become very œdematous, and the patient's strength was failing. Before applying the forceps, Dr. Elliot endeavored to dilate the os by means of Barnes's dilators, but was unsuccessful, as it was impossible to insinuate them between the os and the head, as the latter was constantly pressed down by the pains, which were still as severe as ever. The warm douche (about a gallon), followed by manual dilatation, was more successful. She was then anæsthetized by Dr. Lewis Fisher, the senior assistant, and at half-past ten Dr. Elliot applied the forceps, the posterior fontanelle being applied to the left ilium transversely. After considerable exertion he succeeded in rotating the occiput under the pubes, and delivering a living boy weighing seven pounds, and feeble. A free employment of the ordinary means completely established the respiration. There was a caput succedaneum over the right posterior portion of the scalp, and a slight mark over the right eye corresponding to the point of application of the forceps. The uterus contracted nicely, and the woman did well.

CASE 115.—*Occiput pressed against linea ilio-pectinea, rotating from left acetabulum to near the right sacro-iliac synchondrosis, and made to engage by manipulation.*

At 1 A. M., December 12, 1864, I was called to Mrs. —, in labor with her third child. Os uteri dilated, and sufficiently dilatable to allow the passage of the head.

Membranes unruptured and not tense. Post. font. to left acetabulum. Foetal heart on left side, not audible on right. The cause of delay was the fact that the occiput had struck the linea ilio-pectinea. 9 A.M.—Occiput still on the linea ilio-pectinea. Foetal heart distinct on right side, not audible on the left. Os uteri fully dilated. Membranes passing through. 4 P.M.—Foetal heart not audible anywhere, but the foetal movements very distinct. On careful examination I found the occiput still on the linea ilio-pectinea, and now directed to a point midway between the centre of the right ilium and the right sacro-iliac synchondrosis. Pains had been strong all the while. No sleep. The head, therefore, pivoted on the linea ilio-pectinea, and had made a half turn of the pelvic brim. I then ruptured the membranes, passed my right hand within the vagina, and pulled against the upper and posterior parietal bone, while I made pressure on the head with the left hand through the abdominal wall. In this way I flexed the head satisfactorily, and made it engage. The advance was then very rapid, the occiput rotated anteriorly, and by 6 P.M. a girl, weighing nine pounds, was delivered naturally. No caput succedaneum. Between the apex of the posterior fontanelle and the occipital protuberance there was a depression, caused undoubtedly by the pressure against the linea ilio-pectinea. Both did well. Chloroform from 4 P.M. until after delivery of the placenta.

CASE 116.—*Ante-partum hemorrhage; rotation of head before engaging in the brim; forehead presentation converted by the hand into that of posterior fontanelle.*

Mrs. ——— was awakened during the night of the 11th of December, 1864, by uterine hemorrhage, which was not excessive or alarming, and when I saw her at 8 A.M. of the 12th, there was still a moderate flow with some clots in the vagina. The os uteri was dilated to about three inches in diameter, and the membranes unruptured; liquor amnii

evidently in large quantity. Cannot touch placenta. Post. font. to left acetabulum. Fœtal heart distinct on the left side, and heard somewhat on the right. Pains feeble. During the morning there was a little flow, and the discharge of a small clot the size of an orange. The membranes passed down, the head remaining at the brim, and at 2 P. M. I ruptured them, when the discharge of waters was excessive. On examining the head I found that the posterior fontanelle had moved around toward the right sacro-iliac synchondrosis, and that the anterior fontanelle was carried down by the gush of water, so that the occipito-frontal diameter was in the brim, and the os frontis distinct to the touch. Having given ether, I then pushed the brow well up; and again, in half an hour, I repeated the manœuvre, which had once more been rendered necessary by descent of the forehead. After this I gave a couple of drachms of a saturated tincture of ergot, when flexion was maintained, and the occiput rotated anteriorly and came under the symphysis. After the birth there came a double handful of clots. Placenta gave no difficulty. No further trouble. Both did well. Child—a boy weighing nine pounds.

The head made to engage in the brim by altering the mother's position.—We may succeed in forcing the head to engage in the brim by altering the mother's position, even in cases where there is no marked uterine obliquity, and thus facilitate the application of forceps, if the labor should not then terminate naturally; as in the following case:

CASE 117.—*The movement of descent brought about by changing the position of the mother; forceps.*

Rose Hayden; aged 23; first; Lying-in Asylum. The resident physician, Dr. Wilson, sent for me on the 24th of February, 1860, to this patient, whose labor had commenced in the night of the 21st. During the 22d no progress had been made. Pains good. Morphia. On the morning of the 23d the os

was not sufficiently dilated to allow the presentation to be made out. By midnight the os was well dilated, and the waters discharged. The head then rested on the brim anteriorly, and did not dip within the true pelvis. Having elevated the hips and depressed the shoulders, the movement of descent commenced, but the pains now became irregular and the patient feeble. When I saw her at 10 A. M. she had been vomiting a clear green fluid. The head was presenting with the posterior fontanelle to the right acetabulum. Os fully dilatable, but had not yet slipped over the head. The greater part of the head was yet in the brim, and the caput succedaneum very large. Foetal heart and uterine souffle most distinct over the left umbilical region. Dr. Wilson brought her under chloroform, and I introduced the first blade readily in front of the left sacro-iliac synchondrosis, but moved it up under the left descending pubic ramus with much difficulty on account of the size of the head. The second could only be introduced after much trouble, and a thicker one could not have been passed at all; and as it was, I could not introduce it as far as was desirable, and was obliged to withdraw the first a little in order to lock them. The cervix uteri did not interfere, and both blades were well within it. I moved the pivot to the second hole, but found it necessary to move it to the first. The delivery was difficult, and required all my force, but the tractions were chiefly made with the transverse bars, from fear of injuring the foetal head, which I knew to be exposed to danger from the position of the blades and the necessity for altering the pivot. The child was born living, weighed eight and a half pounds; left angle of the frontal bone marked with the forceps; the point of the corresponding blade resting over that eye, which was uninjured. Skin behind the right ear slightly abraded; no paralysis of portio dura. Perineum not at all lacerated. Placenta came away well. Ergot and then morphia. Both mother and child recovered nicely.

CHAPTER X.

CHOICE, USES, AND APPLICATIONS OF FORCEPS (CONTINUED).

Introduction of forceps within the cervix uteri.—*Case*: Puerperal eclampsia; albuminuria; douche; forceps within the cervix.—*Case*: Eclampsia; douche; forceps delivery through a moderately dilated cervix.—*Case*: Eclampsia in the eighth month; extraordinary family history; rigid cervix; douche; dilators; forceps.—*Case*: Forceps for arrest of head in superior strait from extension of head; manual efforts at forceps unavailing; application of forceps; laceration of cervix.—*Case*: Rupture of uterus at its vaginal attachment; forceps.—Incision of cervix.—*Case*: Eclampsia; absolutely unyielding os and cervix; douche; incision; forceps.—Application of forceps in the brim.—In contracted conjugate the head transverse, and seized obliquely.—*Case*: Delayed labor; forceps and conversion of a right occipito-posterior position; facial paralysis of child, and its recovery after convulsions.—Head seized in one of its oblique diameters.—Choice and uses of forceps.—Best use is that of a tractor.—*Case*: Forceps.—*Case*: Forceps; perforator.—*Case*: Illustrative of great tractive force; forceps; perforator.—*Case*: Powerless labor with rigidity; ergot and forceps.—*Case*: Forceps; impacted head; perforator.—*Case*: Forceps and laceration of vagina; subsequent application.—*Case*: Forceps; tedious labor from rigidity; advantage of touching the head and forceps blades through the rectum during delivery.—*Case*: Forceps for delay; still-born child; death of child and difficulty in delivery believed to have been due to the encircling of the neck by the funis.—Application of the anterior blade.—Position of the patient in forceps and operations.—*Case*: Forceps for delay; cord tightly around the neck.

Introduction of forceps within the cervix uteri.—The blades of the forceps must inevitably be introduced within the cervix, to a certain distance, in a large proportion of cases; but it occasionally happens that if they are to be used at all, they must be introduced so as to seize the head which

has not yet commenced to escape therefrom, and while the cervix is barely dilated enough to admit a slender pair.

Such necessities increase the difficulties, the uncertainties, and the dangers of the delivery. The lining membrane may be bruised, the cervix torn badly, and after all the delivery be impossible unless the cervix be incised, or measures taken to secure its dilatability. Such results multiply the risks of subsequent puerperal inflammations, even though they produce no other effect. Still, these dangers must be incurred in certain cases, and it must be remembered that the cervix uteri is liable to be lacerated in a large proportion of natural labors, especially among primiparæ. My experience has taught me that forceps applied in this way may succeed in dilating a rigid cervix which was undilatable in manipulation. When, therefore, the condition of the mother, or of the child, or of both, demands immediate delivery, a tentative application of forceps may be made in their interest, though the cervix be not satisfactorily dilated or dilatable, provided only that the blades of a slender forceps can pass.

CASE 118.—*Puerperal eclampsia ; albuminuria ; uterine douche ; forceps within the cervix.*

On the 25th of March, 1862, I was sent for in consultation with Drs. M. C. and V. B., to see Mrs. M——, a multipara, about forty years of age, near her full term, with puerperal eclampsia, associated with albuminuria. She was very feeble, unconscious, and without any of that physiognomy often found in cases of convulsions dependent upon uræmia. She had been many times convulsed without regaining consciousness in the intervals, nor indeed did it ever return. The cervix uteri had been undilatable and the pains ineffectual. The warm uterine douche had been used by Dr. M. with the effect of procuring a certain amount of dilatation which would yet, however, scarcely authorize an attempt at version. The foetal heart was beating, and the head pre-

senting and felt to be entirely within the cervix. Her condition demanded prompt measures of relief, and, in the judgment of all the consultation, the choice of operative measures lay between forceps and perforation; nor was much hope felt that forceps could possibly be applied. With the permission of all, I carried my forceps entirely within the partially dilated cervix, and succeeded in locking them upon the foetal head, after which I dilated the cervix by drawing the head steadily and firmly upon it with the forceps, and delivered a living child. The mother remained unconscious, sank steadily, and died within twelve hours. The child was spoon-fed, and died when a week old.

CASE 119.—*Puerperal eclampsia; douche; forceps; delivery through a moderately dilated cervix.*

Dr. Bishop sent for me on the 14th of April, 1862, in the afternoon, to see Mrs. McD——, a primipara, aged 19, who had been taken with puerperal convulsions in the morning, which had continued during the day without any interval of consciousness. The urine was markedly albuminous, and her mother stated that there had been great œdema of the feet and legs up to the waist for three or four months before her confinement. Her hands also had been so swollen, that she had been obliged to remove her wedding-ring. The foetal heart was beating, and the cervix was just sufficiently dilated to permit the introduction of my forceps upon the head, which had not yet commenced to pass through the neck. Such dilatation as there was had been effected by the warm douche, which Dr. Bishop had been injecting against and within the cervix. Accordingly, both blades were passed within the cervix, upon the head presenting in the first position, and a living child was delivered, of a normal size. The head was of necessity marked; since, to draw the head through, and then dilate the unyielding cervix, it had been necessary to bring the blades together as closely as

was justifiable. The child was revived with some difficulty, but then seemed to do well, though it died on the second day. No post-mortem could be obtained.

The mother had many convulsions after her confinement, and did not recover her consciousness for twenty-four hours.

After this time she remained very anæmic and weak, and was obliged to keep her bed for three weeks, and then suffered from faintness when she assumed the erect posture. There were no symptoms of metritis, peritonitis, or material injury from the operation. Gradually, however, she regained her strength, became again enceinte, and miscarried in November, 1862, at the end of the second month.

At the time of the convulsions the urine was examined by Dr. Wm. H. Draper, with the following result: "Sp. gr. 1021. Reaction acid. Under the microscope numerous casts, generally of the smaller tubuli; some of them are perfectly transparent, others have one or two coarsely granular epithelial cells attached, and others again are slightly granular, some of the granules having the bright glistening appearance of oil. The bottle was not perfectly clean, and must have contained greasy matter, from the amount of oil found in the field of the microscope."

In this case the convulsions were as severe and continued as in the gravest class of cases. An examination of the urine many months after showed it to be perfectly healthy; specific gravity of the normal urine, 1016.

When I last heard from the patient she was approaching the term of her third pregnancy.

CASE 120.—Puerperal eclampsia in the eighth month; extraordinary family history; rigid cervix; douche; dilators; forceps.

Dr. John A. Brady, of Williamsburgh, sent for me on the 8th of October, 1867, to a young primipara, aged 23, in the eighth month of her pregnancy, with eclampsia,

and informed me of the following remarkable facts in evidence of a very singular hereditary predisposition to eclampsia. The mother of the patient had given birth to four daughters, and had then died from puerperal eclampsia in the delivery of a son, who is now living and well. Of the four daughters, one died of eclampsia at the sixth month of her first pregnancy. Another had two miscarriages at an early period of pregnancy, and then died in eclampsia in the third, leaving a living child which weighed less than four pounds. The third sister had eclampsia at about the sixth month of her first pregnancy, and recovered. She has since had a miscarriage.

Under these circumstances Dr. Brady had carefully watched the urine of this patient during the pregnancy, without finding any albumen until about a fortnight before the convulsions, when it appeared in large quantity. Hot-air bath and salines caused a diminution, but it would recur, and the day before the attack the urine had almost solidified. The question of inducing labor was under consideration when she was seized with labor-pains and well-marked eclampsia, at about 9 A. M., October 8th.

I found her moderately under the influence of chloroform, the exhibition of which was shown then and subsequently to be absolutely necessary for warding off the recurrence of the attacks, which, however, amounted to some ten or twelve, of a very violent character, during the day. Her jactitation and restlessness were painfully marked. The bowels had been very freely moved on previous days, but they were again acted on freely by stimulating injections. Some urine drawn with the catheter showed a very large quantity of albumen when boiled. The question of the abstraction of blood came up with peculiar force in this instance, from the fact that venesection had been used in the case of the only sister who had recovered. But the pulse was so feeble that when I first touched the wrist it demanded care and attention for its recognition, and such had been its characteristics for some

time before the labor. She was pale, anæmic, feet and legs œdematous, face a little puffy. Still in the course of the day we ventured on the withdrawal of a couple of ounces of blood by cups, from the temples, without injurious effects, but we did not consider it safe to take any more. At 1 p. m. we introduced the smallest-sized dilator with difficulty within the very rigid cervix. The soft parts were rigid and not relaxed at all. By 4 o'clock we had faithfully tried the dilators, douche, and manual dilatation, and had ruptured the membranes. The head was presenting, but not pressing on the long, narrow, and rigid cervix. This was dilated to a fraction over two inches by measurement, and as undilatable as ever. The patient's condition was so very unfavorable that we decided that an effort should be made to introduce the forceps within the cervix, and endeavor to procure dilatation by traction on the head. Fœtal heart distinct. This I managed to accomplish with my own instrument, and when introduced it was tightly embraced between the lock and fenestræ by the cervix. When the second blade was slipping to its place—a movement in which no force was used—a moderate stream of dark blood came from the cervix which we believed to depend on detachment of the placenta. Traction was ineffectual, and we did not like to divide the long and thick cervix, so we decided that the instrument should be withdrawn, and the trickling of blood soon after ceased. Shortly after the tips of the fingers of one hand were felt by the side of the head, and pushed up. We now repeated the douches, and did our best with the dilators. We distended these with our best efforts, but with little effect, though the pressure of the rigid cervix was such as to spring a leak in one dilator, and burst the pipe of the syringe. We also gave a couple of drachms of Squibb's fluid extract of ergot to increase the pains, and some alcoholic extract of belladonna by the mouth, and a stimulating enema. Dr. B. and I tried manual dilatation thoroughly. Between 8 and 9 o'clock we had dilated the neck to a diameter of be-

tween two and a half and three inches, and the head had come down so as to press upon it; and as the foetal heart was beating, the convulsions recurring, and the patient's condition very unfavorable, it was decided to make another effort with forceps. On this occasion no flow of dark blood followed. They were introduced and locked, but the delivery demanded time with intervals of rest, and strong counter-pressure, and manual dilatation of the cervix, which yielded with great difficulty. However, a living child was brought into the world, the head seized in the bi-parietal diameter, and the sides of the face marked by the pressure of the blades. The pivot had not been used, as the size of the head did not demand it, and consequently the rigid cervix pressed the blades powerfully against the head during its transit. The placenta came away well, and the uterus contracted nicely. Respiration remained hurried. *No urine was found in the bladder after 1 P. M. of the 8th.* Microscopic examination, by Dr. Brady, of the urine then drawn, showed abundance of waxy casts, and epithelial cells, and fat globules. The patient recovered a partial consciousness after delivery, and at 1 A. M. her pulse was 102; respiration 34. She then raised her pelvis from the bed, and had some moderate flooding. Pulse went up to 168, and she died at 4 A. M. of the 9th. No autopsy. Child died fifteen hours after delivery.

In these difficult and responsible applications of forceps there is a certain risk that the cervix might tear badly and involve the peritoneum—a risk which also attends a natural labor.

CASE 121.—*Forceps for arrest of head in superior strait from extension of head; manual efforts at flexion unavailing; application of forceps; laceration of cervix.*—Bellevue—Dr. Elisha Kinney, House Physician.

J—H—; married; aged 29; first confinement; in labor from May 9th, 5 A. M., to May 10th, 4 P. M.; still-born

girl; eight pounds; occiput to the left; first stage, twenty-two hours, when membranes ruptured; partial descent, and then arrest, when the head remained stationary for fifteen hours. I was then sent for, and found that the chin had departed from the breast, and that the anterior and posterior fontanelles were in the same place. Fate of child as yet doubtful. Not being able to move the head, and the woman's condition obviously demanding relief, I applied forceps. There was no room for the second blade, except by carrying it directly to its place behind the right acetabulum, which was accordingly done; blades readily locked, and delivery effected without difficulty. Chloroform. Bladder previously emptied. The condition of the funis showed that the child must have been dead for several hours. The placenta came away readily, but the uterus did not contract well, and there was a considerable amount of post-partum hemorrhage before ergot and ice brought about contraction. Patient came sluggishly from under the chloroform. Surface cool, pulse weak, and died in fourteen hours.

Autopsy.—Heart normal. Lungs do.; old pleuritic adhesions both sides. Intestines tympanitic. Parietal peritoneum intensely injected over uterus. Uterus moderately well contracted. Sinuses filled with coagula; no pus discovered in them. On the inner surface of the uterus, posteriorly and inferiorly, one or two spots puriform in appearance, not examined microscopically. Pus in one Fallopian tube. Posterior wall of cervix on the right side torn obliquely to the peritoneal coat—this not involved. Liver under-sized, and apparently fatty. Kidneys both fatty. Spleen normal.

It is interesting to note, from the nature of the application, that neither blade of the forceps went in or near the position of the lacerated cervix.

There was reason in this case for believing that metritis had set in during the labor—an occurrence seen occasionally in lying-in hospitals.

CASE 122.—*Rupture of uterus at its vaginal attachment ; forceps.—Bellevue—Dr. Hicks, House Physician.*

Catherine Logan ; Irish ; married ; aged 30 ; second pregnancy ; menstruated for the last time in January, 1860 ; labor commenced October 1, 1860, at 4 P. M. ; presentation L. O. A. ; labor terminated October 2d, at 11.15 A. M. ; first stage, four hours ; second, fifteen hours ; third, five minutes ; child, male ; weight, ten pounds ; still-born, putrid.

I was sent for to this patient between 6 and 7 A. M., October 2d, and arrived at about 9, and found the patient collapsed, with anxious countenance, constant vomiting, excessive thirst, surface cool and damp. All pains had completely ceased. Drs. Taylor and Barker were sent for in consultation ; but both being out of town, I proceeded to deliver with forceps, an operation demanding considerable tractive effort on account of the large size of the child, which from appearance seemed to have been dead several days, as the skin could be readily detached. No anæsthetic was used, the condition of the patient sufficiently contra-indicating its employment. Hemorrhage did not occur, and the uterus contracted down promptly, and remained firm and hard. Brandy and morphine were now administered freely, while a stimulating lotion of brandy, salt, and the tincture of capsicum, was applied to the surface. These measures seemed for a while to produce a favorable result, the pulse appearing to increase somewhat in volume—though the vomiting still continued with unremitting activity and persistence unto the end, notwithstanding that a large variety of expedients were adopted for its relief. No perceptible change occurred in the condition of the patient until Thursday, October 4th, when she died at 6 A. M. Though frequent attempts were made to nourish the patient by the mouth, they were invariably abortive, being instantly ejected from the stomach, and after three or four enemata of beef-tea and brandy, as promptly by the rectum.

Autopsy.—Disclosed a rupture of the vagina at its posterior cul-de-sac at its junction with the uterus, through which Dr. Ferguson, having introduced his hand in the abdomen, readily pressed two fingers in the cavity of the uterus. There was a large effusion of clotted blood in the peritoneal cavity which escaped when the cavity was opened, but no other evidences of inflammatory action than a slight injection of the serous coat could be found. The uterine tissues in the vicinity of the rupture were softened and infiltrated with blood. Uterus well contracted. The pelvis seemed sufficiently roomy, but the promontory and the linea ilio-pectinea presented a sharp and prominent edge, though without projecting spiculæ.

Incision of cervix.—The following case occurred about nine years ago, and offers as well-marked an illustration of a rigid os and cervix as could be presented:

CASE 123.—*Eclampsia; absolutely unyielding os and cervix; douche; incision; forceps.*

The following case is in the words of Prof. Samuel Percy:

“Catherine H.—; aged 26; primipara. I was called upon to attend this patient at the solicitation of Dr. James Hyslop, as he had a previous engagement in another part of the city. The patient had for the previous month or six weeks complained to her friends of swelling of the hands and arms, and of the whole of the upper part of the body, and also a puffiness of the eyelids which made it unpleasant to move them; the urine was scanty, and at times highly colored. She asked no advice, as she was assured by her friends that it was nothing unusual. She had during the afternoon walked to her sister’s, a distance of more than two miles. Shortly after arriving, she was troubled with labor-pains, and through the evening, as they increased in severity, slight convulsions accompanied each pain. When I first saw

her, at 1 A. M., the convulsions were so severe that she did not recover her consciousness afterward. I found the os slightly dilated, but not more than sufficient to pass with difficulty two fingers, and quite undilatable. The bladder was distended, and I drew off with the catheter about twenty ounces of dark bloody urine. I put her immediately under the influence of chloroform, and kept up its effect until 4 o'clock P. M., during which time she had but one convulsive paroxysm, which occurred while my attention was drawn from her for a short time, so that she passed from under the influence of the chloroform; but during this whole time, with every pain, there was a threatened convulsion, which was subdued only by the chloroform. I administered nauseating emetics, and abstracted blood, in the hope of procuring dilatation; but, at the expiration of twelve hours, the os was as undilatable as at first. I could not at any time hear the foetal heart, but thought that several times I heard the placental souffle. About 3 P. M. she seemed to be sinking fast, the pulse sank rapidly to 18, and the respiration to 7 in the minute. I again bled her, and the pulse returned to 90, and the breathing became more frequent and less labored.

"I had sent for medical assistance, and Dr. Gouley now arrived; we injected about three gallons of warm water against the os, in hopes of dilating it so as to apply forceps; but it remained as rigid as a board. After partially dividing the os on one side, one blade of a pair of rather heavy forceps belonging to Dr. Hyslop was introduced, but it was impossible for either of us to introduce the other blade, and if even the fingers were passed up some distance by the side of the blade, the contractions were so violent as to cause the operator great pain by the compression of the fingers against the iron. We found that with these forceps it would be impossible to deliver, so we sent for Dr. Elliot. With difficulty his forceps, which were much lighter and of very superior shape, were introduced by him, and the delivery accomplished only after dividing the os on both sides.

"The child was dead. A warm injection was administered, the bloody urine again drawn off, an active purgative given, and cups applied freely over the kidneys; but the patient did not rally, and died about midnight. The friends would not allow a post-mortem."

It would have been an easier, and a justifiable task, to have used the perforator. But children often remain alive when the foetal heart cannot be heard.

Still, with the methods now at our command, I scarcely expect ever to incise an os again. I have found it necessary in three cases, all seen in consultation, and two of which were cases of eclampsia and albuminuria.

The application of forceps in the brim. In contracted conjugate, head transverse and seized obliquely.—If the pelvis offer the most frequent example of deformity of the brim—contraction of the conjugate—as in the cases we are considering, and the child have reached term, it may be expected that the sagittal suture will present transversely, with the posterior fontanelle to one ilium or the other. Under these circumstances, the head is always seized obliquely—from one brow to behind the opposite ear; and although some slight differences may obtain in the site, the variation will not be great. The danger from this application is twofold: 1. That of compressing the head, obstructing the cerebral circulation, and producing extravasation. 2. That the blades may cut or bruise the foetal tissues. These may be even badly cut or torn, and the eye may be seriously injured. It is not always easy to tell exactly how far the blade that passes over the brow may reach. The point may reach to the eyebrow, to the eye, and below the eye. If it reach to the eye, and strong compression be made, irreparable injury may be inflicted. I know of a case where the eye passed within the fenestra and was guillotined, as it were, by the slipping of the instrument. The child, however, was dead before the operation was performed.

Paralysis of the portio dura is not unfrequently produced by pressure of the blade over and behind the ear. This is an unimportant accident, and, according to my experience, temporary in duration. In the following case the paralysis lasted longer than I ever knew it to do before or since, but the pressure applied during the rotation was probably great, although the tissues were uninjured. It would be interesting to know whether extravasation had occurred.

CASE 124.—*Delayed labor; forceps and conversion of a right occipito-posterior position; facial paralysis of child and its recovery after convulsions.—Bellevue Hospital—Dr. Munson Coan, House Surgeon.*

Mary Fane; second pregnancy; aged 25; Irish. Labor-pains commenced in Bellevue Hospital, October 29, 1862, and were neither powerful nor frequent until the rupture of the membranes on the 30th, at 4.30 A. M. Having then augmented in power and frequency, the head descended to the inferior strait, but no further progress was made till 1 P. M. The case was then examined by Dr. Elliot and diagnosed to be right occipito-posterior. The foetal heart was loudly audible over the anterior part of the abdominal wall as high as the umbilicus. The vagina was moist and of good temperature, woman robust and of good condition, pains feeble. Four hours more passed without advance. Caput succedaneum augmented. Foetal heart less distinctly audible, pains very forcible. The patient being brought under the influence of chloroform, Dr. Elliot applied forceps, and rotated the occiput under the symphysis. The child was delivered almost lifeless. It was revived by hot and cold affusion. Facial hemiplegia existed on one side, which had partially disappeared when the child left the hospital on the thirty-fifth day. On the 2d and 3d day of June it had several convulsions, which resembled those of trismus nascentium.

Placenta removed by Dr. Elliot thirty minutes after delivery. The uterus contracted and relaxed alternately for two hours and a half, when some clots were expelled.

The recovery of the mother was rapid and without an untoward symptom.

The head is seized in the oblique diameters.—Whether the pelvis be normal or not, before rotation of the head has occurred the forceps are commonly applied in the oblique diameters of the head, and of necessity in cases where the occiput is rotated anteriorly from either synchondrosis, even though they be subsequently removed, and reapplied in the bi-parietal diameter as soon as the position of the head will permit.

It follows, therefore, that in difficult applications of the forceps it may be anticipated, as a law, that they will be applied over one of the oblique diameters of the foetal head. But the operator must always be able to tell beforehand the particular diameter embraced, and to say which brow is pressed upon, and where the traces will be found, if any exist. The inability to prophesy this fact demonstrates that the operator does not act with a clear idea of the situation. It may happen, in very exceptional cases, that the head is so high up, and so swollen, as to defy a diagnosis of its position; and that neither the foetal heart, abdominal manipulation, nor conjoined pressure with one hand over the head above the pubis, and the fingers of one hand in the vagina, may conduce to a certain result. In these exceptional cases tentative and explorative operations may have to be resorted to, and Nature may have to be “interrogated” in the delivery.

Choice and uses of forceps.—*The best use of the forceps is that of a tractor.*—Nor should they be allowed to compress the head unless it is evident that traction alone will not suffice. Under these circumstances compression with forceps offers the child a chance that the perforator can never offer, and therein lies its advantage; but it is always a sad

moment with me when compression has to be resorted to, as in Cases 98 and 99. The chances of cerebral extravasations darken the future, and one ought to be very sure that tractions are insufficient before using compression.

I am convinced that the addition of a sliding pivot to the handles of forceps is invaluable in graduating this compression, and in preventing its risks. With its aid, the exact amount of approximation of the blades desired can be decided upon before the tractions are commenced, and the risks of pressure, in the excitement and labor of the delivery, dismissed from the mind.

It dispenses with the necessity for the short handles which Radford and others have recommended, and allows them to be as long as may be desirable for a firm and powerful grasp. Cases will occur, however, though very exceptionally, of delivery of a large head, unfavorably seized, where the forceps are so widely separated that the pivot as ordinarily arranged may be scarcely sufficient, and where transverse bars, or an arrangement like Simpson's, at the articulation, may offer the best purchase.

It is very desirable that forceps should occupy as little space as possible. In very many cases a slender and narrow blade can be readily or cautiously passed, where but a fractional increase of size might render the application impossible. Hence that instrument will have the widest range of usefulness which takes up as little room as is consistent with strength and the requisites for the head curve. All sharp edges are hazardous, and the extreme breadth from one outer edge to the other of each blade should taper gradually toward the handle, and not describe the bold convexity of Davis's and similar forceps. When the head is seized in the biparietal diameter nicely and satisfactorily, as pictured by Meigs in his work, that instrument is perfectly adapted to the average head, and neither the breadth of its blades nor the convexity alluded to is objectionable. But we have seen that this application is impossible in all but the simplest

cases; and when the head is seized in its oblique diameters, or the instrument cannot be advanced so as to grasp the whole head thoroughly, as happened in the following case, then the edge of one or of each blade may be free and liable to cut the vagina or the perineum.

CASE 125.—*Forceps.*

I delivered Rose Swift with forceps, in Bellevue Hospital, in February, 1858, on account of arrest of the head, probably from exaggerated flexion.

In applying the instrument, it occurred, from the position of the head, that the points of the blades reached the temples, just above the zygoma, and the handles, of course, not coming together, the pivot was adjusted to obviate risks from pressure. The delivery required strong effort, but left no trace. Prof. Barker was present. Child weighed 9 lbs. Living. Mother died from puerperal fever.

It is impossible to devise a forceps which can be the best instrument for every case. One might as well attempt to make a shoe or a hat to fit every foot and every head. All that can be expected from a single instrument is that it should take up as little room as is consistent with strength, and its uses; that it should afford every opportunity for powerful traction, without risking compression, until compression should be demonstrated to be unavoidable; that it should have such a pelvic curve as may enable the operator to convert occipito and mento-posterior positions into anterior positions, provided no other conditions prevent; that it should have no edges liable to project unduly and risk the laceration or cutting of maternal tissues. It is my belief that fenestræ diminish somewhat the risk of injuring the head, especially the ear; but it is comparatively unimportant whether they are present or not. Straight forceps can be used to deliver through the brim, and in the case of Eliza Ford (No. 99) it will be seen that they were applied with equal facility. It

is, however, my conviction that a slight pelvic curve is desirable, and that it diminishes the risk of lacerating the perineum and vagina, in cases where this is projecting and rigid, and tractions have to be carefully made in the direction of the superior strait. Still this is a matter for individual choice, and it is true that the line of traction is always represented in the straight forceps by the axis of the handles, while allowances must be made in the others for the curve of the instrument. On the whole it is my conviction that a slight pelvic curve will render the instrument better for the beginner. The expert needs no advice.

There is an advantage in a lock which can readily be fastened, and if its security receive the additional guaranty from the pressure of one hand on transverse bars at the articulation, or from a finger pressing upon it from above, the great requisites of facility and strength are combined, and the more accurate adaptation of Bruninghausen's or Levret's lock dispensed with.

Such, in brief, seem to me the requisites for a forceps adapted to the great majority of cases. It cannot be the best for all, and no one can be devised that is free from criticism. Very much depends on the way in which the instrument-maker tempers the metal, and follows the model. This is so often neglected, that every man who has devised an instrument must have seen specimens for which he would regret to be responsible. Hence, although there have been more forceps designed than are really needed, and although no material improvement can be suggested in them, there is good reason for believing that special instruments can be better procured in cities where their manufacture can be supervised by those who feel a professional interest in the result.

Having used myself some fourteen different styles of forceps (not including two applications of Simpson's air-tractor), my preference was given to that of Prof. Simpson; but about ten years ago, Mr. Ford, of this city, 85 Fulton Street, hap-

pened to be present at a lecture of mine in which I sketched the qualities which I should like to combine in a forceps, and offered to make a model of the instrument which I had described. He succeeded in doing so, and it has proved useful and satisfactory to me, as well as to many others. It is well known in this city, and seems to me as applicable now in the great majority of cases as it seemed ten years ago.

All slender forceps are liable to lose their head-curve in time if subjected to great tractive force, and I have been surprised that mine have stood the test so well. I once saw such an accident happen in the hands of Dr. Shekleton, master of the Dublin Lying-in Hospital, where they did not exaggerate the applicability or tractive powers of the instrument. It has happened to me on one occasion with a pair of Simpson's forceps, purchased from Weiss, in London, which had previously withstood many a hard bedside trial.

CASE 126.—Illustrative of great tractive force; forceps; perforator.

Called in consultation with Dr. Freeman to Mrs. M—, a twin, whose sister had died after her second difficult labor; this one, a primipara, 26 years of age, at full term, had been in hard labor for eighteen hours. Second stage.—Os fully dilatable, soft parts cool, head presenting the second of Naegele, right occip.-post., and wedged in superior strait, after commencing rotation; no foetal heart appreciable, but strong uterine souffle; Simpson's forceps, preceded by chloroform and baptism; *tractions, until one blade straightened completely*. Another pair; no better success. Perforator and crotchet now used; hard work. Finally replaced the forceps around the diminished head, and effected its delivery. Shoulders could only be extracted with the blunt-hook; tight work even with the breech. Child must have weighed fully thirteen pounds. I saw the mother afterward, when she was doing well, and I believe that she has done well since.

Remarks.—My reason for making such great efforts with

the forceps, even when the foetal heart was entirely inaudible, was the fear that its position might render it inaudible; for who has not known the foetal heart in the presentation of the post. font. to the sac.-il. syn. become audible after rotation alone?

A fact illustrated in the following case.

CASE 127.—*Powerless labor with rigidity; ergot; forceps.*

Dr. M. sent for me on the 15th of November, 1862, to Mrs. O——, a primipara, aged 30. The labor had then lasted sixty hours, and was ushered in by rupture of the membranes and escape of the liquor amnii. The causes of delay were the unsatisfactory character of the pains and the rigidity of the soft parts. Ergot had latterly improved the character of the pains and advanced the head, but the patient was tired, and implored relief. Vaginal examination disclosed a left occipito-anterior presentation of the head, with the movement of descent completed. Vagina cool and moist; vulva much swollen. The coccyx was quite unyielding, though not ankylosed, nor yet pressed upon by the head; perineum rigid and tense. Neither Dr. M. nor I could satisfy ourselves that we heard the foetal heart. Under these circumstances it was decided to apply forceps, in the belief that thereby the child, if then alive, would be saved, and that many hours of useless suffering would be spared the mother. As soon, therefore, as Dr. M. had thoroughly and promptly brought the mother under the influence of chloroform, I delivered her without lacerating the perineum. The child was a large-sized boy, and required alternate hot and cold bathing, etc., to revive him. Both did well.

There are few facts which impress the beginner more powerfully than the tractive force which can be advantageously and properly used in difficult forceps cases. An inexperienced man, not certain that he has grasped the head properly and firmly—not certain that his tractions are made in the proper axis—

not sure that he is delivering in obedience to the laws of the mechanism of labor—and not certain that he could stop his tractions instantly at the first commencement of slipping—has no right to put so much force on the instrument.

But the man alive to all these indications—sure of the position of his blades, and of the necessity for great force—pulling only with his arms; and not with his back, and wide awake all the time—may find that just such tractions are the only ones which can terminate a labor without recourse to embryotomy; and that just such tractions, repeated again if necessary, may alone justify the subsequent resort to embryotomy.

Such cases are very exceptional, and it is of such that we are speaking; and even then the alternative may be most horrible, and only bearable when we know that delay will certainly kill the child and endanger the mother.

CASE 128.—*Forceps; perforator; impacted head.*

Saw a negress, in 1860, in consultation with Dr. ——. A large and well-ossified foetal head had become firmly impacted in the pelvis. Foetal heart beating. Used all the traction that I could with forceps, without advancing or moving the head one iota, when I perforated and delivered. Mother recovered.

With the exception of comparatively simple cases, in which the delivery can be readily effected, and must be very prompt to insure the successful result of the operation, it is better that the tractions should be made slowly, and even that intervals of rest should be given, when the blades may, perhaps, be also allowed to separate somewhat from each other. This method is peculiarly applicable in delivering through a rigid cervix, or rigid soft parts and perineum, as it imitates the behavior of a natural labor, and allows time for dilatation.

I have seen several cases in consultation where the difficulty met with by the practitioner in delivering, both with

the forceps and the crotchet, has arisen from pulling too speedily in the direction of the inferior strait. We cannot pull a head through the pubes, it may hug the corner, but it must go around.

There is another tendency against which beginners must be warned, viz., an exaggeration of the side-to-side movement in traction. We are taught that forceps advance the head by direct traction, and by a double lever side-to-side movement. And so they do. There is also once in a while an advantage in starting a head by moving the handles a little up and down before drawing upon them. But I have known more than one instance in which the fulcrum has been made of the descending rami, and the tissues on each side have been cut by pressure of the instrument. Vaginal, not perineal lacerations from forceps, are more liable to occur than is generally known, and nothing marks the experienced operator more than his care to avoid these lesions.

When a man is called to complete a delivery where forceps or other instruments have been previously used ineffectually, it is a very good plan for him to make a careful examination of all the maternal and foetal tissues within reach, and to fix the responsibility for any existing lesions before he proceeds to attempt the delivery himself. As a rule these lacerations heal up nicely, and the tissues mould themselves again properly, but they are foci for puerperal inflammations, invite cellulitis, may result in cicatrices, and should be carefully prevented when possible.

CASE 129.—*Forceps and lacerations of the vagina ; subsequent forceps delivery of a living child.*

I was sent for in consultation to a multipara, attended by two excellent practitioners, without, however, a large experience in operative midwifery, and reached the house a little before Dr. T. F. Cock, who had also been summoned. Foetal heart beating. Right occipito-posterior presentation. The forceps had been applied but had failed to deliver. On each

side of the vagina, opposite the junction of the ischiatic and pubic rami, were lacerations, evidently produced by pressing the forceps too firmly against the bones in an exaggerated side-to-side lever movement. Having applied the forceps, and rotated the occiput to the pubes, I delivered a living child, and the mother subsequently did well. Chloroform.

Other cases could be adduced illustrative of these facts. It is certain that the error is most liable to be committed by the man who has most thoroughly mastered the theory of forceps, and has not yet used them much in practice; and I have often noticed this tendency in the first operations of friends of mine.

The beginner must never forget that the perineum distends and advances greatly with the advance of the child's head, unless in multiparæ with great relaxation, or deficient perineæ. When the perineum is rigid, the head must be advanced slowly and in the direction of the curve, hugging the pubes, so that at the last the handles of long forceps with a pelvic curve touch, or almost touch, the mother's abdomen.

It is very rarely necessary to remove a slender pair of forceps well applied. They can come with the head. I have only done so in three or four instances. By pressing the fingers in the rectum, the operator can appreciate not only the relations of the head to the perineum—and possibly advance the head, or even deliver it with the fingers alone—but he can appreciate the relations of the forceps to the soft parts when the head is seized obliquely. An invaluable precaution, which I rarely omit.

CASE 130.—*Forceps; tedious labor from rigidity; advantage of touching the head and forceps' blades through the rectum during delivery.*

Mrs. —, November, 1860, aged 24; primipara; right occipito-posterior position. Male child, living. Mother did well. Very little liquor amnii. One of the "driest labors"

that I ever saw. Tried flax-seed tea, white of egg, lard, oil, glycerine. Vagina and perineum rigid and unyielding. Chloroform for about ten hours to a moderate extent. Posterior fontanelle came at last to the right acetabulum, and then remained stationary for several hours. Prof. Gilman then saw the patient in consultation, and recommended forceps, which I applied. The perineum very rigid. Anus widely open, as often happens in primiparæ. Delivered without lacerating the perineum, deriving great assistance from introducing two fingers well within the rectum to make sure of the relations of the forceps to the head and the soft parts.

Let me not be understood to imply that the perineum can always be saved from laceration. This will happen when the camel can go through the eye of a needle. But disproportion of size is not the only cause. One may sometimes clinically suspect a given perineum of a tendency to lacerate despite all precautions, and find his forebodings true, although he cannot explain them satisfactorily. The relations of the perineum to the curve of certain sacra sometimes influence the result.

CASE 131.—*Forceps for delay ; still-born child ; death of child and difficulty in delivery believed to have been due to the encircling of the neck by the funis.*

Margaret Bradley ; single ; aged 26 ; first pregnancy. In labor from February 12, at 2 P. M., until February 15, 1861, at 1.45 P. M. Presentation L. O. A. First stage forty-eight hours ; second, twenty-three hours and forty minutes ; third, five hours. Still-born male child, weighing seven and a half pounds. Bellevue Hospital, Drs. Erskine Mason and Rives, House Physicians.

This patient stated that the waters had dribbled for several weeks before delivery, though great confidence was not placed in any of her assertions. The foetal heart was last heard in the evening of the 14th, and could not be detected

in the careful examinations made subsequently to that time. No movement of the child could be appreciated for twenty-four hours before delivery. As it was evident that there was nothing more to be expected from the uterine efforts, I decided upon delivering her with the forceps. The three days of labor had not produced exhaustion, nor evidences of danger to maternal tissue, but the head absolutely failed to advance. The hand introduced well within the vagina showed that the head was in the superior strait partially through the brim, and not wedged, impacted, nor arrested by any condition depending on faulty ratio of size between it and the maternal pelvis, or by any cause which could be appreciated. The mother's abdomen seemed of greater size than is usual with children of this weight. The forceps were readily introduced in the customary manner in such positions—one blade in front of the left synchondrosis, the other behind the right acetabulum, and readily locked, though their relations to the oblique diameter of the well-developed foetal head required that the pivot should be pushed to the highest hole. The first tractions were promptly successful in completing descent and rotation, but they had to be very forcible to draw the head well on the perineum. *This appeared to me to be a perineum very likely to tear*, and I accordingly withdrew the forceps in accordance with Pugh's and Madame Lachapelle's advice (though in my experience this is of the rarest necessity), and completed delivery of the head with the aid of two fingers in the mouth and firm traction on the superior maxillary bone. The funis was twice around the neck and entirely pulseless, so that no doubt was left concerning the death of the child, and I drew forcibly on the head without advancing the body. Introducing my hand within the vagina, I found the shoulders in the brim, and drew down the posterior arm with much effort, fracturing it designedly to facilitate the manœuvre, after which the delivery was effected and the placenta came away almost immediately. The perineum was now found lacerated in a jagged manner,

so as to slightly involve the lower part of the septum. This occurred subsequently to the withdrawal of the forceps, and was immediately sewed up with silver wire, but without the slightest effort at repair. The action of the sphincter ani was entirely unaffected. The scalp, face, and ears of the child were livid from congestion, the marks of the funis white, and the skin below of the ordinary color. No examination made of brain. Funis one yard long.

In this case it has always seemed to me that the delay occurred from retention by the funis, the gradual tightening of which during the labor I believe to have caused the child's death. In support of this view, I point to the evidences of strangulation observed in the child, and the steady increase of tractive force required as the fœtus was advanced. The difficulties depended on no disproportion of size or faulty position of head, shoulders, arms, or any other part of the body, as these points received my full attention during the manipulations described, nor was there any spasmodic irregular contraction of uterine fibres. Especially did I examine the position of the arms preparatory to deciding on bringing one of them down in the manner described, as the displacement behind the neck was forcibly brought under my observation by the kindness of Prof. Simpson in taking me to the case described in the *Edinburgh Monthly* for April, 1850. The length of the cord in this case would seem to have been sufficient for a natural delivery, but it is probable that even a funis of such length may prove a cause of delayed labor. It requires about twenty inches of funis to furnish two coils for the neck, and the remainder may very well be so disposed around the child's body as to impede the advance of the head, especially if the placenta should be attached to the fundus uteri. The mother died September, 1861 (seven months after), in the hospital, from an attack of diarrhœa, her health never having been completely restored after her confinement. There is no history of her case.

In many cases a slight laceration of the perineum by the head is converted into a larger, or a formidable one by the shoulders, or by subsequent manipulations, hence our care should be redoubled at these times.

I have often derived advantage from pressing back the head or shoulders with the fingers under these circumstances, and anaesthetics are of great service.

Application of the anterior blade.—We are taught to carry the anterior blade to its place by a spiral sweep, introducing it in front of the synchondrosis or in a nearer situation and then gently moving it around into position. In 1853, the late Dr. John C. Cheesman taught me to carry it directly behind the acetabulum without any preliminary. By this method I have often applied forceps promptly and satisfactorily when the spiral sweep would have been impossible or very difficult, or an additional risk to the maternal tissues. Numerous examples of this practice are scattered through this volume, and I have taught the same for fourteen years in many clinical cases. The legs should be well separated, the fingers carried as a sheath to the position, the handle depressed, and the blade carried directly to its site. The practice is not recommended as one more desirable as a rule, but as convenient in some cases, and the only possible plan in others.

Position of the patient in forceps operations.—Except in rare and very exceptional cases my patients are always placed on their backs for forceps application, as is the custom in this country and in France. In my opinion, after a trial of the side, and observations abroad—including a residence of six months as resident pupil in the Dublin Lying-in Hospital—the operator thus has the patient under much better control, and she is much better placed for the anaesthetic, and for other assistance.

In the following case the peculiar position of the patient might have occasioned injury to the perineum.

CASE 132.—*Forceps for delay ; cord tightly around neck.*

At 3 A.M., July 30, 1866, I was called to Mrs. — by Drs. R. and H. She was a primipara, aged 27, well formed and healthy. The discharge was rather greenish, but her condition good in every respect. There had been no advance for some hours, although the pains were strong and good. She had been in labor since the morning of the 28th, and the membranes had ruptured on the morning of the 29th. All parties were tired out by the strain of two nights' watching. Fœtal heart beating on the right side. Head presenting. R. O. A. Movement of descent not yet completed. One foot to be felt within the brim to the left. A small pendulous polypoid tumor on the upper wall of the vagina. The patient being brought under the influence of chloroform, I applied forceps and delivered without difficulty, though I could not understand why it was necessary to so exaggerate the upward traction until I recognized that it arose from the fact that, as the bed was very low, those having charge of the patient's knees lifted them so high as to produce this result. Such an accidental position might well lead to injury of the perineum if not appreciated in time. The child was a boy of large size, the cord of a greenish color, and tightly around the neck, and demanded fully three-quarters of an hour of labor before respiration was established.

CHAPTER XI.

EMBRYOTOMY.

Preliminary considerations.—Difficulties attending the proof of the child's death.

—*Case*: Forceps in lingering labor twice applied.—Preliminary baptism.—*Case*: Breech presentation; paralysis of sphincter ani coexisting with foetal heart-sounds; fillet after death of child.—*Case*: Forceps for exhaustion of mother; approximation of ischiatic spines; liquor amnii colored with meconium.—*Case*: Forceps for cessation of foetal heart-sounds.—*Case*: Pelvic presentation of a child weighing fourteen pounds; remarkably small nates; blunt-hook.—*Case*: Arm presentation; cephalic version; child supposed to be dead; no reflex movements; foetal heart inaudible; meconium present in great quantity in the discharges; child subsequently born alive.—*Case*: Forceps for delay and danger to child; difficult auscultation.—Choice of instruments for embryotomy.—Perforator.—Cephalotribe.—Craniotomy.—Forceps.—Blunt-hook.—Introduction of the perforator.—*Case*: Perforation in a contracted conjugate.—*Case*: Contracted outlet; forceps; perforation.—*Case*: Forceps and perforator for deformity of brim.—*Case*: Arm in the vagina; head above to the right; child dead; perforator; brow had originally presented.—*Case*: Rupture of uterus; removal of placenta and version; perforator.—*Case*: Eclampsia in sixth or seventh month; induction of labor with douche; venesection; purgatives; delivery with a crotchet made of strong wire.—*Case*: Fatty degeneration of foetus and placenta at term with history of previous labor.—*Case*: History of her previous labor.—*Case*: Twins—one living, one dead; fatty degeneration of the latter's placenta.

Preliminary considerations.—Whenever in a difficult labor the child can be proven to be dead, and the labor can be facilitated by embryotomy, this operation should be preferred.

Whenever there exists a hope that the child may still be living, embryotomy must not be resorted to, unless other

elective operative measures have failed; and perhaps have failed in more than one trial. Nor even then is embryotomy justifiable unless the consultation are convinced that further delay must certainly preclude every chance of safety for the child, and very seriously endanger the maternal tissues or life.

There are, however, cases of labor where the child is certainly known to be dead, and yet the operator is absolutely confident that he can deliver an unmutilated child with forceps, without adding to the mother's risk. And this may be specially true of the expert. There are also cases in which the physician is confident that he personally is better fitted to deliver with forceps than to use the perforator. In these contingencies a man must judge for himself, and take the responsibility.

This practice may, however, be abused. There are men who are so reluctant to use the perforator, that they will always prefer operations more dangerous to the mother when the child is proven to be dead. This extreme is a safer and a better one than the too ready resort to the perforator, which has characterized some practitioners and schools; but it is still an error. If a man undertakes these operations, he must perform those which are for the benefit of the patient, rather than those which are more agreeable to himself.

Difficulties attending the proof of the child's death.—The beginner cannot impress too strongly on his mind the clinical fact, that children are often living when the foetal heart cannot be heard; when foetal movements cannot be excited by the hands on the abdomen or within the uterus; when the child will not suck the finger put within its mouth, and when the anus will not contract around the exploring finger. The foetal heart may beat, but be inaudible from debility, change of position, and character of objects intervening between it and the mother's abdomen. Greenish vaginal discharges, and the presence of meconium in large quantities

therein, in cases where the head presents, do not prove that the child is dead. Examples of all these facts are given in this volume, and force us to the conviction that the perforator is often resorted to with the clearest convictions for its desirability while yet the child lives; and these facts show that we should most reluctantly admit the fact that the child is dead. In many cases, as in that of Mary Foy (No. 100), this may be demonstrated by the pulseless condition of the funis. In estimating this condition, time should be allowed for such careful examination as may show the fact to be undoubted; and it is well, if possible, that others should appreciate the same.

In all cases, however, in which, while the funis is pulseless, there is yet a hope that these pulsations have recently ceased, and that prompt delivery of an unmutilated child may be effected by other methods, the perforator must not be used until these shall have been faithfully tried.

In some cases where a thorough but ineffectual trial of the forceps has been made, and further time then allowed, the labor may terminate spontaneously, when it may be objected that the forceps were applied without necessity. Without denying that these cases occur, such a contingency should not weigh with a competent man who has conscientiously done what he believed to be the best for the interest of the two lives confided to him.

CASE 133.—*Forceps in lingering labor twice applied.*

Dr. — sent for me in consultation in April, 1859, to Mrs. —, a primipara, about 20 years of age, who had been in labor for two days, the membranes having been ruptured nearly thirty-six hours. The posterior fontanelle was to the left acetabulum, the movement of descent not completed, rotation unaffected, foetal heart beating, vagina cool and moist, patient fatigued. The patient having been brought under the influence of chloroform by Dr. —, I applied the

forceps with the concavity of their pelvic curve to the left, rotated, and delivered a living female child of large size, which did well, as did also the mother. In this case an ineffectual effort at delivery with forceps had been made before my arrival, and it was believed that perforation would probably be required. The case illustrates the advantages often obtained by repeated trials of forceps.

Preliminary baptism.—Wherever the parents of the child are Roman Catholics, and believe that baptism of the unborn child is essential, the operator should see that a presenting part of a living child be baptized before a dangerous operation is undertaken, since, according to the Roman Catholic Church, this can be done by a layman; and it is the duty of the physician to respect the religious convictions of his patients.

This advice is desirable in this country, where all varieties of religious creeds are found, and enjoy an equal independence. In Catholic countries such practice is the rule and not the exception. Depaul gives the history of a case in which the preliminary baptism was performed as a matter of course, and the parents informed thereof by the attentive practitioner. The situation may be appreciated when he found that baptism had been carefully administered to the offspring of Israelites.

CASE 134.—*Breech presentation ; paralysis of sphincter ani coexisting with fetal heart-sounds ; fillet after death of child.*

The late Dr. Winchell sent for me on the 11th of May, 1863, to Mrs. L——, in labor with her second child. The first labor had been very long and tedious, and she had finally been delivered with forceps of a dead child. On this occasion the waters had broken at 5 A. M., May 11th, when a breech presentation was recognized, the sacrum being turned to the left sacro-iliac synchondrosis. Child male. Pains

good. Woman very stout. At 8 P. M. the doctor sent for me, saying that he thought interference would be necessary to terminate the labor.

I found that the maternal passages were moderately dry, but not hot; maternal pulse and condition good; moderate amount of water in the bladder. *Fœtal heart was beating, but the rectum did not at all contract when the finger was introduced within the sphincter.* Scrotum greatly enlarged. Breech entirely in the superior strait. Movement of descent not completed.

The situation was in some respects peculiar. It was the first time that I had ever been able to recognize the fœtal heart when there coexisted such paralysis of the sphincter; indeed, I had been accustomed to consider such paralysis as one of the evidences of death. Interference was not needed for the mother's sake, and I gave it as my opinion that we could scarcely hope to deliver the child without mutilation; and that as the pains were good, we might better wait longer to see whether Nature could do better. It seemed to me that the paralysis of the sphincter, although not an evidence of the child's death, was yet a strong evidence of its very exhausted condition, and gave but a feeble hope of its ability to live, though it were born alive, and I could not avoid the conviction that with the history of the previous labor, the duration of this labor, the size of the child, the size of the mother—padded as she was with fat—neither the hands nor the forceps would suffice. Accordingly we separated. The labor-pains continued strong until 4 A. M., May 12th, when, as there had been no advance, Dr. W. gave her forty drops of McMunn's elixir of opium, and she had some sleep. At 10 A. M. I was called again, and found that there had been no advance. Maternal passages neither hot nor swollen. No fœtid discharge. We decided to interfere, and I proceeded to introduce a fillet made of a strip of linen three inches wide, and about twenty-eight inches long. This was well soaked in oil, and folded so as to diminish its width by one-half. Some

five or six inches of one end being rolled into a ball, I tried to pass it over the anterior thigh (left), but it was impossible to pass any thing whatever over that thigh, so tightly was it pressed against the anterior wall. It was with a great deal of difficulty that I succeeded in getting it around the posterior (right) groin.

Dr. Meigs says in his "Obstetrics," second edition revised, page 495: "The efficacy of its (the fillet's) action would be greatly enhanced by placing it on the groin that is farthest from the pubal arch; but that is a feat of dexterity that can rarely be performed."

It was performed in this instance, but I do not see the advantage of choosing the posterior thigh. On the contrary, it seems to me that, in obedience to the mechanism of labor, we should always seek to advance the anterior natis the first, as is always done in a natural labor; and furthermore, that we can thus most successfully draw the whole trunk in the direction of the superior strait when the breech is situated therein.

We found it difficult to bring down the breech, and relieved each other in our tractions with the fillet, but neither fractured nor dislocated the bone, nor lacerated the skin of the groin. As the breech descended, it turned spirally, so that the right trochanter, which had originally been the posterior one, came out under the pubes. The second arm had to be delivered with a blunt-hook, but was not fractured. The head was then found to be situated transversely, with the chin above the linea ilio-pectinea, and somewhat toward the left sacro-iliac synchondrosis. The child was dead. Forceps would have been inoperative if it had been living, as there was no room for their introduction; and the blunt-hook having been securely fastened in the mouth by Dr. Winchell, he brought it down and delivered. The placenta was on the anterior face of the uterus, and there was some hemorrhage after delivery. Ergot and irritation of the inner part of the cervix caused contraction. The abdomen

was so very stout as to cause some difficulty in manipulating the uterus. I believe that the mother did well, or I would have seen her subsequently.

CASE 135.—*Forceps for exhaustion of mother; approximation of ischiatic spines; liquor amnii colored with meconium.*

February 8, 1861.—Bellevue—Dr. Erskine Mason, House Surgeon.

In this patient—a primipara—no advance had been made since the evening before, membranes unruptured, foetal heart beating, head presenting first position, descent not completed, soft parts in good condition. The mother was much exhausted, feeble pulse, hoarse voice, suspicions of phthisis. Ruptured membranes, liquor amnii scanty, *like diluted molasses, no odor, probably colored with meconium.* On examination, the spines of the ischia were found to project unduly; first blade very readily passed; second had to be carefully placed in position behind the right acetabulum by direct application, the customary spiral movement being impossible. To deliver, it was necessary to slip the pivot down two holes below the point where I had first placed it, as some compression was necessary. Child born living; weight, seven and three-quarters pounds; somewhat marked and bruised by the blades. No injury to perineum. *March 6th.*—Both have done perfectly well. Traces of forceps disappeared.

In this case stimulus was given before Dr. Rives brought her under chloroform.

In the following case the child would have been still-born had I not been warned by the history of the *three* previous still-births. It is only when the waters are evacuated, and the physician is sure that the intensity or the situation of the foetal heart is not altered by a change in the position of the foetus, that a sudden and permanent cessation of the

heart-sounds may be accepted as indicating the danger or death of the child.

CASE 136.—*Forceps for cessation of foetal heart-sounds.*

Mrs. K—— engaged me in October, 1859, to attend her in her fourth confinement. Her three children had been still-born at term, and two had presented the breech. On examination I found that the head presented, and the foetal heart-sounds were distinct. Within a fortnight the labor commenced, and proceeded without any thing worthy of note—occiput anteriorly, inferior strait reached—until suddenly the foetal heart-sounds, which I had been watching attentively, grew faint and stopped. Without waiting for chloroform, I immediately delivered with forceps, and succeeded in reviving a feeble but well-developed child. Unfortunately, however, it died at the age of two months, from pneumonia. It is my conviction that many still-births might be prevented by more frequent examinations of the foetal heart than are customarily made during the progress of labor.

CASE 137.—*Pelvic presentation of a child weighing fourteen pounds; remarkably small nates; delivery with blunt-hook.*

In November, 1860, I presented to the class at Bellevue a still-born female child, weighing fourteen pounds. The mother had an ample pelvis. It was her eighth pregnancy, and she believed that she had carried the child ten months. I was called in consultation to the case on account of a non-advance in labor. The membranes had ruptured before the presentation could be made out. On examination I found a pelvic presentation, the sacrum being toward the right acetabulum, and the dorsum of the child toward the abdomen of the mother—the most frequent form of pelvic presentations.

The uterine efforts appeared to be powerful, and the delay seemed the result of over-distension of the uterus. The great bulk of whatever was contained in the uterus was ascertained, by external examination of the abdomen, to be on the *left* side. So that, assuming the existence of only one child in the uterus, we had the anomaly of the presentation as described, the nates *small* absolutely, the balance of the child relatively immense, and its great convexity on the *left* side! Images of course arose to the mind, of twins, and monsters of every kind: double children, children with two heads, hydrocephalic children, children with ascites, etc.

Advised delay.

On the next morning, there being no change and the patient's condition being good, delay was no longer considered advisable. The presenting part was found, on examination, to be just dipping into the superior strait. Therefore (chloroform having been administered) introduced my right hand and pulled upon the anterior leg. In this way, and with the finger in the groin, I pulled and tugged and toiled with all the force at my command, without any advance in the way of delivery. I then had recourse to the blunt-hook in the groin, and, after long and wearisome effort, succeeded in drawing that part of the child down to the vulva. The leg of that side was, by that time, pendulous merely by a portion of the skin. The child was, of course, long since dead. Similar efforts drew down the other side. The head passed without instrumental assistance.

In this case the absence of contractility of the sphincter ani (the heart being inaudible) was accepted as a sign of foetal death, as at that time I believed it to be. As the child lay upon the table, the small size of the nates appeared in striking contrast to the great bulk of the body.

CASE 138.—*Arm presentation; cephalic version; child supposed to be dead; no reflex movements; fatal heart inaudible; meconium present in great quantity in the dis-*

charges ; subsequently born alive without assistance.—Bellevue—Dr. Amabile, House Physician.

Julia Larrey, admitted to the lying-in wards of Bellevue, April 11, 1866, at 10 P. M. She is married ; 28 years old ; second pregnancy, the first resulting in a miscarriage. Labor-pains had commenced at 8 P. M. Fœtal heart audible a little to the left of the abdomen. Os uteri not sufficiently dilated to allow the presentation to be recognized. After the waters broke, the right hand was found presenting, and the vertex could be felt a little toward the right. Dr. Amabile called me to this patient at 11 A. M., April 12th, and informed me that the fœtal heart could not be heard after 8 A. M. The right arm was in the vagina ; long axis of uterus normal. Head recognizable above the pubes. *Meconium present in great quantity in the discharges. No reflex movement of the head.* I proceeded to push up the arm and bring down the head. In doing so, the right *foot* was recognized above the brim, and *no reflex movement could be produced thereof.* Both were pushed up and the head brought into the brim of the pelvis by external pressure. The head was found to present in the right occipito-posterior position, and before leaving it I flexed it thoroughly. The assurance given me that the fœtal heart was inaudible, and the other conditions detailed, decided me to leave the case to nature, and I supposed that the child was dead and did not listen myself.

The patient came well from under the anæsthetic, the pains came on, and she was delivered of a healthy child three hours after. Both did well.

CASE 139.—*Forceps for delay and danger to child ; difficult auscultation.*

Bellevue Hospital, Dr. Levi Warren, House Physician. Catharine McDermott ; Irish ; aged 30 ; first confinement ; menstruated last, December 1, 1855. Labor commenced October 10, 1856, at 2 P. M., and was terminated at 3 P. M.,

October 12th. First stage, fifty-two hours; second, eight and a half hours; third, fifteen minutes.

Strong labor-pains for fifty-two hours, which were, however, ineffectual. The os uteri, although not rigid, would then only admit the tips of the fingers. The membranes then ruptured, when the head was found presenting in the first position, and a few strong pains drove it down to the inferior strait, where it remained without advance for eight and a half hours, notwithstanding strong continued uterine efforts. At this time the house staff could not distinguish the foetal heart, and Dr. Warren sent for me. Having recognized feeble pulsations, I applied the forceps and delivered a living female child weighing eight and a quarter pounds. The perineum was slightly torn, but healed perfectly, and the patient left on the 1st of November, perfectly well.

Choice of instruments for embryotomy.—Perforator.—I have tried the various modifications of Smellie's scissors in use, and have seen them in the practice of others; and have tried Kilian's trephine-perforator, Prof. Thomas's gimlet-headed perforator, with a concealed knife working with a spring, as well as others. With the forceps, a man may require more than one pair; but he need not own more than one perforator. The modifications of Smellie's scissors are available in all cases; the instruments of Kilian and Thomas are admirable in cranial presentations, but are not available in the delivery of many cases of the head retained in pelvic presentations.

Blot's perforator, on the other hand, is applicable in every case in which the perforator can be used. It does not demand an assistant as Smellie's, and many modifications of his instrument do. When the blades are shut, they are superimposed, and no guard is needed except the operator's own hand. They are very manageable, readily cleaned, and command my entire and hearty preference, and nowadays I use and recommend no other to those who wish but one instrument.

Still the instrument of Kilian may facilitate the operation in cranial presentations for many practitioners, as there is scarcely any risk of its slipping, and so large a disk of bone and scalp is removed therewith that it may possibly facilitate the removal of the brain, and injection of water in some cases. I do not believe that there is less risk from spiculæ with Kilian's instrument than with Blot's, when properly used.

Crotchet.—The best crotchet that I have ever met with is Churchill's. It is best made with two points instead of one, and these should not be sharp. With this instrument introduced within the skull, while two fingers of the other hand are so held as to make counter-pressure, a powerful traction can be exerted. If the hand be so held that the palm will receive the force of the instrument if it should slip, no injury will be done to the maternal tissues, and I have never known any to be done to those of the operator, although one scarred hand has been shown to me while this work was going through the press. In cases of pelvic presentation this instrument can often be fastened on the occipital bone, when the purchase is extremely powerful and not liable to slip. With the crotchet delivery can be effected without exposing the woman to the additional risk (however slight in competent hands) from the application of the blades of craniotomy forceps or cephalotribes. The crotchet, in my opinion, is preferable to any craniotomy forceps which cannot be disarticulated, and permit the separate introduction of the blades. And there are cases in which the cephalotribe cannot be applied or used as a tractor until the brain is completely evacuated and the diameters lessened, when a more speedy and prompt delivery can be effected by the crotchet. If delivery of the head with the crotchet threaten to be difficult, the brain should be washed out by a stream of water before the tractions are made. In most cases this is unnecessary, as it escapes readily enough during the tractions, if it be well broken up before these are made. In bad cases of pelvic

deformity with a large and well-ossified head, the crotchet is not as serviceable as the cephalotribe or Simpson's cranioclast.

A case of premature delivery in a breech presentation is given in this work, in which a strong piece of bent wire was used for traction.

Cephalotribe.—I have used this instrument in several cases, some of which are published in this volume, and have been prepared to use it in others in which (as in the case of Mary Foy, No. 100) it was inapplicable for lack of space, unless I had delayed until the brain had been previously fully evacuated—a delay which would have been unnecessary, while even then the cranioclast would have been preferable, as the application was so much simpler. It offers great advantages when a very powerful grasp is desired which is not liable to slip, and in cases of deformity where it is desirable to crush the foetal diameters before delivery. I have always used Scanzoni's. Perhaps Braisky's may prove superior.

I have crushed the heads of a number of still-born children with this instrument for class demonstration, and though I have succeeded in fracturing the bi-mastoid diameter with it, I have generally failed. With the *écraseur* there is a tendency to draw more tissue into the grasp of the instrument than may be desirable; with the cephalotribe the opposite result most generally happens, and while the points of the blades may be accurately applied over or beyond the mastoid processes, they slip toward the sagittal suture, or toward the face in some cases, while they are being forced together, and thus avoiding the bi-mastoid diameter, sink deeply into the temporal, parietal, or frontal bones.

In the child delivered in Case No. 100, I made some experiments with Scanzoni's cephalotribe, a few hours after the delivery, with the assistance of Dr. W. T. Lusk, who has read an excellent paper on "Cephalotripsy" before the "New York Medical Journal Association," published in the *Medi-*

cal and Surgical Reporter of Philadelphia, for June 8, 1867. We made repeated efforts to fracture the bi-mastoid diameter, and failed, as it appeared on dissection. We succeeded in breaking off little pieces of the processes, and in disarticulating the temporal from the occipital bone. This separation diminished the diameter one inch by measurement with callipers—an important result—as it thus measured only one and a half inches.

Where the application of the cephalotribe is rendered difficult by the narrowness of the pelvis, or the elevation or size of the head, it is desirable that the brain should be evacuated by a stream of water injected within the skull, as in Case No. 51. This procedure, in other cases of difficult delivery with the crotchet or cranioclast, may afford great assistance. An ordinary Davidson's syringe is all that is required.

Craniotomy forceps.—No craniotomy forceps should be purchased unless so constructed as to permit the separate introduction of the blades and their subsequent locking. In my opinion Simpson's cranioclast is the best craniotomy forceps that has come under my observation, and that with its aid the uses of the cephalotribe are very restricted indeed. Nothing could have acted better than the cranioclast did in Case 100 and others recorded in this work. It diminishes the risks and difficulties from the introduction of such instruments as the cephalotribe, and craniotomy forceps which pass outside of the head, more than one-half. Cases are very rarely met with indeed in which it cannot be used. The principle is an excellent one. It cannot slip, and its buckle-like model is an admirable adaptation; but like all craniotomy forceps it may tear out completely the part which it has grasped, and demand successive reapplications. It is in these difficult cases that the cephalotribe is so serviceable, since, when that is drawn out of the vagina, the whole head comes with it. The cranioclast is probably a safer instrument for general use than the cephalotribe or crotchet. The screw upon the one

modified by Barnes which I first used, is so fine that an unnecessary amount of time is lost in arranging it. I have caused one to be made by Mr. Ford, of this city, with the handles of my forceps, and a very coarse screw, which can be rapidly adjusted or withdrawn.

Meigs's craniotomy forceps.—In Case No. 103 these proved of decided advantage.

Blunt-hook.—This is often very useful in tractions upon the groin, the axilla, or the lower jaw of a dead child. For living children it would be well to have curves of different sizes, so that they might be adapted to the groins and thighs in difficult pelvic presentations. Examples are given of its various uses, and one peculiar case where it was passed through the anus and abdominal wall of a dead child, so as to hook it over the pubes. The fillet is preferable in pelvic presentations of living children. I have never used the double blunt-hook with the obstetric lock.

Introduction of the perforator.—There is but one danger—that of glancing off from the head and injuring the maternal tissues—and there is no reason why this should ever happen. To prevent this contingency, the operator must keep clearly in his mind the axis of the head in the direction which he has selected for perforation. If the head be high up or movable, it should first be mapped out, and then steadied by the hand of an intelligent assistant placed over the mother's abdomen. This assistant can distinguish, as Dr. Mead did, in Case 100, the passage of the perforator within the cranium. After Blot's instrument has been introduced, it should be withdrawn until the broadest diameter of the blades is in the incision, when they should be carefully opened in two directions. After which, keeping them widely separated, I rotate them several times in the free opening that has been made, thus securing a free and permanent opening through the bones and scalp. If the scalp has been well incised, this

opening is all-sufficient. It is immaterial to me whether the perforation be made in a suture or a fontanelle, or through the bone. As a rule, I select the depending site. A great deal has been said of the risks of lacerating the vagina from spiculæ of projecting bone in delivery of the perforated head, but no cases have come under my observation, and such an accident ought, as it seems to me, to be avoidable. The risks from spiculæ give the most embarrassment in delivering through an undilatable cervix in cases where the cephalotribe could not be used without previous free incision.

After the perforation has been effected, no instrument can be better fitted to break up the brain tissue than Churchill's crotchet, though one blade of the cranioclast answers every indication. It generally surprises one, witnessing this operation for the first time, to notice the freedom and force with which an instrument can be rattled in the cranial cavity, but the movement is safe within that bony box.

It is desirable to break up the brain very thoroughly to facilitate the delivery. It may be necessary to inject the cavity of the cranium with water after breaking up the brain, and wash out the diffuent mass.

It is certain that in many cases of perforation the delivery is not effected until a great part, and perhaps all, of the brain has escaped. If this has only escaped under the tractions which have compressed the head, and thus squeezed out the brain, it is obvious that in certain cases the maternal tissues may have been subjected to an unnecessary pressure, as the diameter of the head might have been previously lessened by procuring the complete evacuation of its contents.

CASE 140.—*Perforation in a case of contracted antero-posterior diameter of brim; mother did well.*—Dr. Mola, House Physician.

Ann Royal, aged 22, primipara, strong, well-developed, healthy-looking girl of medium size, entered the lying-in ward at Bellevue at 7 P. M., November 12, 1863. Os uteri

noted by Dr. Mola as about as large as a ten-cent piece, and not dilatable; pains not strong; head presenting; heart-sounds over left iliac region; uterine souffle also distinguishable.

November 13th, 8 A. M.—Has not slept much last night. Os still rigid; dilated to the size of a half-dollar; membranes unruptured and protruding. Head presenting; foetal heart the same. *2.30 P. M.*—Pains a little stronger. Waters have broken, presentation recognized, the posterior fontanelle being to the left acetabulum, and just dipping within the brim. Foetal heart as before. *6 P. M.*—Head has not advanced. Os not fully dilated, and somewhat rigid. Pains feeble and constant. The examining hand is covered with a greenish, slimy material. Impossible for any one to recognize the foetal heart.

I was then sent for, and arrived at *11.30 P. M.*, when the patient had been brought under chloroform. I made an examination, and found the os uteri, presentation, and position of the head as noted at *6 P. M.*; while, by passing the hand well up, the cause of delay could be recognized in an undersized antero-posterior diameter of the brim, and the left parietal bone was pressed against and driven in by the promontory at a point between the sagittal suture and the boss. Foetal heart inaudible. The situation left no doubt in my mind that the child was dead, and had probably died from injury to the cerebral circulation; and it seemed that forceps were inadmissible under the circumstances (especially so when the risks of puerperal fever, incident to the season, were considered), although the degree of deformity did not forbid the trial of a slender pair. Accordingly, Dr. Rowe kept up the chloroform, and I introduced Blot's perforator near the posterior superior angle of the right parietal bone, and completely broke up the brain. Churchill's crotchet being then introduced, the head was gradually and readily drawn into the world, the placenta following almost immediately. Half an hour afterward Dr. Mola discovered that

the uterus, which had been kept pressed down by the nurse, was rather large, and that blood was oozing from the vulva. Accordingly, he introduced his hand, turned out some clots, and gave ergot, and in two hours left the patient sleeping comfortably.

December 2, 1863.—With the exception of a slight febrile movement on the second day after the operation, there has been nothing worthy of record. The patient will soon be able to leave the hospital.

Child weighed eight pounds in its mutilated state.

CASE 141.—Contracted outlet ; arrest ; forceps ; perforation.

On March 26th, 18—, at 9 A. M., I was requested by Dr. Cadmus to see a primipara, aged 30, who had been in the second stage of labor, with good pains, at least twenty-two hours. I found her with a tender abdomen, a very dry and hot vagina, and a diminished outlet, with an excessively rigid perineum. Pulse and expression good. Foetal heart distinct to the left below the umbilicus. Head presenting, with posterior fontanelle to the *left* sacro-iliac synchondrosis ; the movement of descent barely completed.

The condition of the mother, the disproportion and the presentation, seemed to me to clearly indicate necessity for interference, which was accordingly attempted in the presence of Dr. Cadmus and Dr. —.

The woman having been brought under chloroform, I desired, of course, to seize the head by the bi-parietal diameter, with the concavity of the blades to the right, and the relations of the foetal head to the pelvis prevented me from seizing it otherwise than by the oblique diameters, while the size of the head demanded that the pivot should be advanced to the highest hole. Now made every effort which I could to rotate or advance the head, first trying to turn the occiput toward the pubis, then in the hollow of the sacrum, or to dislodge it in any way from the position which it had so long

occupied with such risks to the mother. But my efforts were utterly unavailing, though they were continued until there was no alternative for this conviction, and tested alike the tractive force of the instrument, and the reliability of the pivot to prevent compression. When convinced of the impossibility of delivering the child alive, I pushed back the pivot and drew on the head, until the capability of the instrument to act as a compressor was demonstrated by its deep traces, but all without success. Determined to try them fully, I braced my feet firmly, and pulled myself out of breath before they yielded, and when they did, no alteration of position whatsoever had been effected. It was deemed useless to replace them after the trials that had been made, and I delivered a large male child with the perforator and crotchet. No waters of the amnion followed, nor hemorrhage, but a stench came after the child which augured ill for the chances of metritis. But, under Dr. Cadmus's care, the woman has entirely recovered.

CASE 142.—*Forceps and perforator for deformity of brim.*

Mrs. —; menses ceased January 8th, confined on 25th of October, 1860, under the care of Dr. Sabine. Diminution of antero-posterior diameter of brim from projection forward of promontory. Her first labor was terminated with forceps, after it had lasted twenty-two hours. Child weighed nearly ten pounds, and is now nine years old. The second child weighed about ten pounds at birth, is about seven years old, and was also delivered with forceps after a labor of eleven hours' duration. Her pains were slight during the whole day, but became more severe toward night; at 2 A. M., Dr. S. applied forceps to the head retained at the brim, but without effect, and sent for me at 3 A. M. I found the head above the brim, dipping the arc of one parietal bone into the superior strait, but quite movable; and asked permission to make an effort with forceps, which was readily granted,

and the forceps easily applied, but it was not possible for me to succeed any better. Fœtal heart inaudible. I then delivered a large child after opening the head, memorandum of weight lost. Mother has done well since (February, 1861), and has been confined of a living child.

The case illustrates the point made regarding the varieties of labors in the same patient.

CASE 143.—*Arm in the vagina ; head above, to the right ; child dead ; perforator ; brow had originally presented.*

Drs. McClelland and Hall sent for me on the 10th of April, 1861, to Mrs. —, who had been long in labor with her second child. The membranes had been ruptured for thirty-six hours, and all the waters long since escaped. The brow had originally presented, and had become complicated by the presence of the left hand and arm in the vagina. I found them there, and the fingers did not close on mine. Cervix uteri fully dilated, but an unusually rigid circular contraction above. Head above the right, partially in the iliac fossa and partially overhanging the true pelvis ; brow presenting ; fœtal heart inaudible ; uterine contractions good now, and had been so persistently. Pulse good. No tenderness over uterus.

The operations to be considered were : 1st, podalic version ; 2d, replacement of arm and cephalic version ; 3d, ditto, and delivery by vectis or forceps ; 4th, replacement of the arm and perforation. The last procedure gained my preference in this particular case, and after Dr. Hall had brought the woman under the influence of chloroform, I replaced the hand and arm in utero ; and then holding the head firmly in position with my left hand applied over the right iliac fossa, I introduced Blot's perforator, and delivered with the crotchet. The uterus contracted well, the placenta came away readily, and the contractions were maintained by ergot. I believe that the mother recovered well.

CASE 144.—*Rupture of uterus ; removal of placenta, and version ; perforator.*

Dr. Bishop sent for me on the 8th of May, to Mrs. —, a widow, in labor with her eighth child. The other seven had been born living, with the exception of the last, which was turned by Dr. Bishop for prolapse of the funis. The husband had recently died from Bright's disease.

In this labor, Dr. Bishop had been sent for at 8 A.M., and found the os uteri fully dilated, head presenting (post. font. to left), foetal heart beating, maternal condition good. At half-past 10 he was called away, and left the patient under the care of Dr. Sheehan. All continued to go on well until about 1 P.M., when she suddenly complained of great pain in the abdomen, and a sensation as though something had given way. She immediately became very weak, the presenting part receded, and no more uterine contractions took place. There was no hemorrhage, and no vomiting, but nausea, and a disposition to vomit. I saw her with Dr. B. at 3 o'clock. Pulse 120, feeble, skin cool, no uterine contractions. Abdomen very sensitive to the touch. Head presenting; entirely above the brim in the right iliac fossa, and resting on the pubes and right rim of the true pelvis. Foetal heart inaudible. On introducing my hand above the brim for purposes of exploration, much dark fluid blood escaped. Having introduced my finger into the child's mouth, no closure followed, and near by I recognized a loop of pulseless funis, not prolapsed. No laceration of the uterus could be detected by the finger. While thus engaged, I found the placenta on the left side of the uterus, nearly detached, so I removed it and divided the cord. There was no further loss of blood. It may be well to state here that nothing had been given to expedite the labor, nor had operative measures been resorted to before the collapse. Believing that rupture of the uterus had undoubtedly occurred, I proceeded, with regret, to the necessary delivery, and, on account

of her weak state, we were obliged to decline the anæsthetic for which she begged piteously until after the operation was commenced, when she no longer embarrassed us by a single word. We agreed that the perforator should be tried first, and if that failed, then podalic version. Dr. Bishop steadied the head in the right iliac fossa, and I introduced my hand wholly within the vagina as a guide to the perforator; but the mobility of the head and the pain from the necessary pressure, caused us to decide on version, and I brought the feet and arms readily into the world; but the chin became fixed over the left linea ilio-pectinea, the sagittal suture running transversely. The child was a male, of large size; there was no room whatever behind the left acetabulum to push back and flex the chin, and I found it impossible to deliver manually. Dr. Bishop then faithfully made every effort to flex the chin without success, when I introduced the perforator into the highest part which I could reach, viz., in the posterior part of the neck on the right side, three-quarters of an inch below the tip of the mastoid process, and working the instrument through the sheath of tissues, penetrated the occipital bone. The crotchet, however, failed to advance the head, and accordingly I passed a blunt-hook in front of the left sacro-iliac synchondrosis, and turning it in the direction which seemed best adapted to enter the mouth, succeeded in fastening it firmly; when having fractured and brought down the lower jaw without advancing the head, I drew firmly and simultaneously with the crotchet and blunt-hook *until the brain began to escape freely*, and the head came into the world. The uterus contracted immediately and firmly, and careful exploration by two fingers within, and thorough exploration of the posterior uterine wall through the relaxed abdominal walls, failed to furnish me with any evidences of laceration. The patient pronounced herself much better, and we gave her every encouragement. Symptoms of peritonitis soon set in, however, which were actively treated in the usual way, but without effect. The vomiting

became of a coffee-ground color, no lochia whatever flowed, and she died on the 12th. No autopsy permitted.

In this case I do not think that the cranium could have been injected satisfactorily.

CASE 145.—*Puerperal eclampsia in the sixth or seventh month of gestation ; labor brought on ; venesection ; douche ; purgatives ; delivery with crotchet made of strong wire.*

At 1 A. M., December 6, 1856, my friend, Dr. H. S. Hewit, requested me to meet him in consultation, and brought me to the bedside of a plethoric, strongly-built primipara, aged 34. She was comatose, and breathing stertorously ; her face, feet, and ankles œdematous ; the blood trickling from a lacerated tongue. She had not exhibited one ray of consciousness from 3 o'clock in the afternoon ; and from that time, convulsions had succeeded each other with about half-hour intervals. No foetal heart was audible, and vaginal examination disclosed a dry and hot vagina ; a long, hard, and undilated cervix, with the uterus at about the sixth or seventh month of gestation. I could, with much force, thrust my finger far enough to be sure that I could detect the membranes, with some portion of the foetus presenting—perhaps, the head. There was scarcely any urine in the bladder, and that, when drawn off with the catheter, and tested with nitric acid, became completely coagulated.

Dr. Hewit had seen her for the first time, at about 9 P. M., and with Dr. Stewart had withdrawn nearly one quart of blood from her arm, which did not coagulate well ; hyd. chlor. mit. ℥j on back of tongue. On inquiry, we learned that she was reserved in disposition, and much depressed in spirits of late, from domestic trouble ; still, our informants could now remember that she had been obliged to lay aside her rings of late, as they had become inconveniently tight—that her face had been noticeably swollen, and that, on the morning of the 5th, she had suffered greatly from pain in the head ; the convulsion came suddenly, without warning to them.

We noticed, in her motions and her convulsions, that the

left arm and leg did not stir. Some four hours having elapsed since the blood-letting, without effect on the os, about a gallon of warm water was played against the uterine orifice. Within an hour's time, the vagina became perceptibly relaxed, and the os perceptibly softened. In a short time longer, my finger could reach the membranes with ease; when I punctured the membranes with the stilette, and recognized a breech presentation. In little more than an hour longer, two fingers could pass readily through the cervix. There was not sufficient space left for a blunt-hook, but it occurred to me, that a strong wire, bent in the form of a hook, might be of service. A piece was procured, and bent with strong forceps. The first effort to introduce this failing from the size of the curve, this was now made smaller, and fastening it around the leg of the child, I was gratified to find that it sank into the flesh, and would allow strong traction without slipping; with this, and one finger, the pelvic extremity was withdrawn, and then the remainder of the body extracted. The placenta was taken away entire. The womb contracted nicely, and the woman lost no blood from the vagina. During the removal of the child, the patient had one convulsion, in which she raised the left arm; but, while injecting the water, and while delivering her, she was placed in the ordinary position for the forceps, with her feet confided, separately, to women—and at neither time did she move the left leg, though she used the other with considerable force. No return to consciousness took place; blisters were applied to temples and the nape of the neck, but at about 10 A. M. she died in a convulsion, after twenty hours of unconsciousness. No post-mortem allowed.

CASE 146.—*Remarkable example of fatty degeneration of fetus and placenta at term; peculiar use of blunt-hook.—Bellevue Hospital—Drs. Erskine Mason and Rives, House Physicians.*

Rosa Buckley, aged 34; twice married, and now a widow

for the second time ; commenced her fourteenth labor on the 26th of February, 1861, at 8 A. M., and was delivered on the 27th, at 5 P. M., of a still-born, putrid boy, weighing nine pounds. I found her in the lying-in ward, in labor, at 4 P. M. on the 27th, and was struck with the enormous size of her abdomen, which I regret not having measured. The general expression of the patient was that of albuminuria, though careful examinations by Dr. Mason failed to detect any thing abnormal. The breech was presenting ; no foetal heart or uterine souffle. At this time the membranes ruptured during a strong pain, when an immense quantity of offensive bloody water was discharged, leaving the left half of the uterine tumor still distended, as though possibly by the unruptured amniotic bag of a twin. On both sides of the uterus abdominal palpitation recognized the outlines of hard bodies, those of a foetus distinct to the right. The breech presenting evidently belonged to a dead child, as the sphincter ani did not contract around the finger, and the skin peeled off. Having decided to proceed to the delivery, I brought down the legs, with the toes anteriorly. The epidermis peeled off readily, but the discoloration frequently seen was not present, the skin, however, presenting spots like those of simple purpura. Having wrapped a towel carefully around the right leg, which was the one destined to come anteriorly, the bones snapped at once, on the most moderate traction. Continuing these tractions with increased care, I was surprised to find the leg separate entirely at the point of fracture. The skin divided as though cut with a sharp knife, and was cleanly dissected from the adipose layer. The bones were denuded and dry-looking, like boiled mutton-bones. In spite of my care, the greatest traction available reproduced a like result with both the other leg and the thigh. I then, with great ease, passed a blunt-hook within the flaccid anus, and through the abdominal wall, so as to hook it over the pubes, and made cautious tractions in the proper axis, and with good effect, until it fractured the pubes, and tore partially

through the foetal tissues. This manœuvre, however, had enabled me to get hold of the crests of the ilia, and subsequently to draw down the trunk; but I heard the bones of the neck snap, and was obliged to stop. Managed to get the arms down without injury, and found that the cervical vertebrae had separated widely, though the skin was unbroken. With the blunt-hook in the mouth I terminated the delivery, and the body was followed by a gush of offensive bloody waters which I have never seen equalled in amount. The placenta came away readily, and was found to weigh 5 lbs. 2 oz. It was entirely fatty—more completely so than any which has ever come under my observation—and the foetal tissues, examined by Dr. Jacobi under the microscope, were found to have undergone fatty degeneration.

The foetus and placenta were shown to the Pathological Society.

This patient (who recovered perfectly) informed me that I had recommended her to come into Bellevue for the induction of premature labor, in consequence of a previous labor in the hospital having been complicated with fatty degeneration of the placenta. That labor occurred in March, 1858, and the name is recorded as Rosa Bennett, number of pregnancy twelfth. The case is distinct in my recollection.

Rosa has been twice married. By the first husband she had seven children, all born living, and three still alive; the other four died between the ages of one and ten. By the second husband seven children, all of whom are dead, and five premature and still-born. Two were not premature, and lived an hour or two after birth. The second husband died from phthisis. Cause of death of the first, not known.

CASE 147.—*History of one of Rosa's previous labors.—Bellevue Hospital—F. A. Burrall, House Surgeon.*

In labor from March 3, 1858, to 7.17 P. M. Still-born male child, weighing $3\frac{1}{2}$ lbs.

Left heel presented just over os uteri, which was high up and directed forward. Drs. Fordyce Barker and Elliot called, and about half an hour after rupture of the membranes the left foot appeared just outside of the vulva, heel posteriorly. A movement of rotation then took place, and the posterior plane of the fœtus came in front. Considerable delay after the breech was delivered. Child dead. Cuticle desquamating. Upper part of body delivered by Dr. Barker after cutting the cord. The fœtus seemed to have been dead a long time, and was almost pulpy. The uterus remained very large, and simulated the appearance of a twin pregnancy. This depended on a large placenta filled with effused blood. After its removal by Dr. Barker it was found to weigh two and three-quarters pounds. Previous to her entrance into the lying-in ward, she mistook a discharge of blood for the waters. Uterus contracted well.

The following case illustrates a condition depicted in Cruveilhier's plates:

CASE 148.—*Twins; one living—one putrid; death; fatty degeneration of placenta of the latter.*

Mary Reed; single; aged 26; first pregnancy. In labor from February 19th, 5 p. m., 1861, to February 20th, 8 a. m., in Bellevue Hospital. Drs. Mason and Rives.

First child a boy; L. O. A.; living; weight, six pounds. Second, dead and putrid; weight, three pounds; footling. One placenta with two sets of cords and two sets of membranes. Line of demarcation distinct. One portion small and very fatty, both to the eye and under the microscope. The other one-third larger and healthy. Placenta shown to the Pathological Society at the same time with the placenta in the case last recorded.

CHAPTER XII.

VERSION.

General considerations.—*Case*: Child dead; uterus distended by gases; version.—How to appreciate the position of the child by examining its hand.—*Case*: Version for transverse presentation of second twin.—Spontaneous expulsion.—*Case*: Spontaneous expulsion by cephalic version of the second twin presenting originally in a transverse position.—Dangers of version.—Version in deformed pelvis.—*Case*: Twins; contracted conjugate; vesico-vaginal fistula after the first labor, cured by Dr. Emmet; perforation of both twins in the second labor, the first presenting the breech and the second the head.—German experience in version as an elective operation in deformed pelvis.—*Case*: Deformed pelvis; dwarf; forceps; version.—*Case*: Deformity of the conjugate; forceps; version; perforation.—*Case*: Contraction of conjugate; forceps; version; perforation.—*Case*: Transverse presentation; difficult version; prolapse of funis.—*Case*: Presentation of nape of neck and shoulder in a contracted pelvis; version; blunt-hook.—*Case*: Oblique cranial presentation from left uterine obliquity; forceps; perforator.—Fracture of limbs in version, or in original pelvic presentation.—*Case*: Version for transverse presentation; fracture of arms; forceps.—*Case*: Forceps in occipito-posterior presentation; fracture of arm.

General considerations.—Version can be performed in several ways: I. Podalic; II. Cephalic.

I. *a.* By drawing down one or both of the pelvic extremities of the child, with the hand introduced for that purpose in utero.

b. By conjoined manipulation. The fingers introduced within the cervix, pressing up the untoward presenting part, and prepared to act at the proper moment, while the uterus

is skilfully manipulated meanwhile through the abdominal wall, so as to facilitate the grasp of one or both of the inferior extremities of the fœtus.

c. By external manipulation alone. Coaxing away the obnoxious presenting part, and bringing the fœtal head or pelvis to the superior strait. I have more than once turned the second twin in this way with a facility that has astonished me.

These manœuvres may be facilitated by the fillet, the blunt-hook, or the craniotomy forceps.

II. By bringing the fœtal head to the pelvic brim, by any of the methods employed in podalic version.

These manœuvres may be aided in certain cases by the vectis, the forceps, the perforator, crotchet, or cranioclast.

In every variety of version the operation is remarkably facilitated by the previous administration of an anæsthetic; and it may be desirable that the patient should be brought so profoundly under its influence as to diminish, if possible, the uterine contractions, as well as to abolish voluntary efforts.

There are many cases of cephalic presentation in which version is an elective operation, viz., whenever the head can be moved above the brim out of the way of the descending trunk of the child, and when immediate delivery is demanded on account of danger to the life of the mother or the child. It is also elective in cases of deformity of the pelvis which will allow the incompressible diameter (bi-mastoid) of the head to pass.

In both of these contingencies the election is determined by various motives. Version is an easier operation, as a rule, and for most practitioners, than the application of forceps within and above the brim; and this consideration justly decides the question in certain cases. One practitioner may be led by his experience to think that he personally can deliver more readily by version than by forceps in a given case,

and therefore should choose the former operation. In the practice of one man similar cases may have resulted more fortunately when delivered by version than by forceps, or vice versa; and hence, in the words of the proverb, he prefers the bridge which has carried him safely over. Finally, the controlling influence of an eminent teacher has its weight with his pupils and followers.

It is, therefore, not surprising that the operation should be considered from many points of view; that it should be overestimated and undervalued; that it should be unjustly neglected and injudiciously used in inappropriate cases. Dr. Figg, in Great Britain, seems to think that the law of Nature which gives us so vast a percentage of cephalic presentations in the birth of living children, can be advantageously changed for version by the feet in his practice. Gardien alludes to a similar enthusiast for the operation in his times.

In my own experience version has been very often necessary, and very often elective. In many cases the simile of Burns has been applicable, and version has been attended with no more difficulty than if the foetus had been turned in a bucket of water. In other cases all my efforts and those of my friends have been unavailing, and a mutilated child has had to be withdrawn. I can personally appreciate the feelings of an old obstetric author (though without having suffered to the same extent) who recounts that after a difficult case of version he thought that he would die, and had to be rubbed before a fire.

As a rule the delivery of the second twin by version is the simplest of these operations, and the sooner that delivery is effected by this method the better when the second child is placed transversely, and there be not some special contra-indication.

In the following singular case version was rendered remarkably easy by a very strange state of things:

CASE 149.—*Child dead; uterus distended with gases; version.*

During my residence in the Lying-in Asylum I was sent for on one occasion by Dr. Pulling to see Mary Kelley, aged 30; fourth confinement, in the last stages of exhaustion from protracted labor, which had lasted forty-nine hours. She had been deserted by the practitioner who had undertaken the case, and then Dr. Pulling was summoned. My friend Dr. C. E. Isaacs happened to be with me, and accompanied me. We found the patient with all the symptoms attending extreme exhaustion—child dead, with head presenting and floating above the linea ilio-pectinea. The *uterine tumor* was markedly tympanitic and all the waters had escaped; pelvis ample. The uterine walls were so distended that the child floated in these gases, as though in the liquor amnii.

Under these peculiar circumstances we decided to perform version, as it seemed to me that this could be performed with great ease, and no delay. My expectations were verified. Do not think that I ever turned more readily, not even with the second twin. While disengaging the head, inhaled a quantity of such foetid gases escaping from the uterus, that I was obliged to give up the management of the placenta, and retire gasping and retching to a neighboring window. The woman died within the twenty-four hours. No post-mortem obtained. The child was not emphysematous, nor very putrid.

How to appreciate the position of the child by examining its hand.—It may sometimes assist the diagnosis of the exact position of the child to bring down the arm and examine the hand. When the palm of the child's hand is placed against the palm of the physician's hand, so that the fingers of one point toward the wrist of the other, the right hand of the child and the right of the physician have their thumbs in apposition, and so with the left hands, but the right hand of the one and the left hand of the other do not so correspond.

In this way it is easy to tell at once which foetal hand is presenting.

If the radius and ulna of the child's hand be placed in the same plane, and the arm be not twisted—facts which are susceptible of prompt appreciation—the direction of the child's palm corresponds with that of its abdomen, and the thumb points to the direction of the child's head.

The expert should, however, very rarely indeed be called on to determine the position by drawing down the hand. Conjoined manipulation will often suffice to determine the position, or a little reflection will enable one to work out the problem when the child's hand can just be reached at the brim, or in utero, by the examining finger. In version by external or conjoined manipulation, or cephalic version, this manœuvre, as a law, should not be employed.

CASE 150.—*Version for transverse presentation of second twin.*

Sarah Burns, aged 31, fourth confinement, October 4, 1852. 1. Vertex—born alive. 2. Left elbow—still-born—twenty-four hours in labor. Placenta weighed three pounds. Lying-in Asylum.

October 3d, 4 P. M., os uteri fully dilated. Pains insufficient. Foetal heart audible. Disposed to sleep. Allowed to pass a quiet night. In the morning foetal heart undiminished in force and frequency, and mother's condition good, gave tr. of ergot, which quickly expelled the first child. The second presented the left elbow—no foetal heart audible, but so loud a uterine souffle as to make the negative result unsatisfactory. Sent for Drs. Cheesman and T. F. Cock. Having waited an hour for them, I proceeded to turn in the presence of Drs. George A. Peters and T. M. Cheesman, the woman having previously taken some stimulus, and been brought fully under the influence of chloroform. Having first brought the hand externally to the vulva and satisfied myself regarding the position of the foetus in utero, I introduced my right hand, and delivered. Child unin-

jured, dead, without the least trace of pulsation of its heart. Patient did well subsequently, requiring only vaginal deodorizing injections.

Spontaneous expulsion.—We should not expect that the unaided efforts of Nature will deliver in cases of transverse presentation of the fœtus. These successful contingencies are too rare, and demand a fortunate combination of conditions both on the part of the child and of the mother, on which we have no right to rely, and for which we should not sacrifice valuable time. The cases in which this result may most frequently happen, are those where an ample pelvis and powerful expulsive pains coexist with a very small or premature child, or with the second of twins.

I have seen two cases of this mechanism in premature cases which confirmed the description given by Douglass, of Dublin, and the following one in the New York Lying-in Asylum, when resident physician there, in which cephalic version was spontaneously performed.

CASE 151.—*Spontaneous expulsion by cephalic version of the second twin, presenting originally in a transverse position.*

A woman fell in labor in the asylum, and a breech presentation was recognized. The pains were very powerful, and the child was forcibly expelled during one of them, neither the arms nor head requiring the slightest attention. It weighed eight pounds. Finding then that the arm of a second child was presenting at the brim, and the head in the left iliac fossa, I sent at once, according to the rule, for Dr. Beadle, one of the physicians, who lived near by and came promptly. But before he arrived, in one of these powerful pains, the head of the child was driven into the pelvis, and the elbow turned down so as to pass with it into the world. The whole child was driven out of the vagina without assistance. It weighed four and a half pounds. Both living. Mother did well.

Dangers of version.—It is undeniable that version is attended with great danger to the mother and to the child. Statistics show this indisputably. The danger to the mother increases in direct ratio to the time which has elapsed since the waters were evacuated. It is probably greatest in lying-in hospitals, and especially during those times when puerperal inflammations and fevers are most rife. Its dangers increase in direct ratio to the amount of manipulation within the uterus, and to the amount of pressure, and bruising of maternal tissues involved. Hence those methods of operating should be preferred, when practicable, which demand the least intra-uterine manipulation.

Although version by external manipulation is no novelty in obstetric literature, it has been accepted by the mass of the profession too recently to enable us to say how far it may hereafter be shown to have diminished the risks of the operation to the mother. It is not probable that those to the child will be materially altered thereby. These are undoubtedly very great indeed, even though statistics be carefully weeded of cases where there was reason to suspect that the fœtus was dead before the operation, and of those cases where the operation may be considered as having been unskilfully performed.

The late Dr. Russ Brownell informed me, that while serving as acting assistant-surgeon in Tennessee, an old negro woman, long engaged in midwifery practice, described the steps of version by external manipulation quite accurately, and said that she had known and practised it always. Doubtless the rude and imperfectly-described manipulations in Raynalde and older authors must have been occasionally successful in changing the presentation, and may have been practised better than they are described.

I always regret to meet a pelvic presentation in my practice, for fear that the child may not be born alive; and I firmly believe in having forceps at hand in these cases, that no contingency may arise which may not be provided for.

Meigs has truly and forcibly said of these cases, that "the child may die while the messenger is putting on his boots."

While accepting, therefore, all these risks, which are inevitable in the original pelvic presentation, and in cases where version is an operation of necessity, they come up again in those cases where the operation is elective. It will be a happy day for those who must take these responsibilities, when the gradually accumulating masses of statistics have been analyzed by an "achromatic brain," and the laws so formulated as greatly to relieve individual responsibility.

Version in deformed pelves as an elective operation.—

In no class of cases, perhaps, may these remarks be more applicable than in those where there is moderate deformity of the pelvis with a living child, and the choice has to be made between forceps and version.

In one case I have delivered with version after I had failed with forceps; and while I have delivered successfully and satisfactorily by version in some cases—in others where I have tried version after failing with forceps, it has not been more successful. Examples of these results are scattered through the book, and some are subjoined.

Every now and then we meet with recorded cases of version in deformed pelves where the results are so satisfactory that one feels as though they should establish the law for our interference. But, alas! few men are willing to print a frank statement of all their failures. Certainly, for my own part, despite my admiration for Sir James Simpson's theory and argument, my own preferences are for forceps as an elective operation, though time and further observation may change my views. Still, my experience thus far, and the opportunities which I have enjoyed for witnessing the operations of others, strengthen my opinion.

In a conjugate of three inches and upward, with a living child and a head presentation, my first choice would be for

forceps. Between two and a half and three, if the child were living, I should perform version.

CASE 152.—*Twins; contracted conjugate; vesico-vaginal fistula after first labor cured by Dr. Emmet; perforation of both twins in this labor, the first presenting the breech and the second the head.*—*Dr. J. C. Stone, House Physician.*

Sarah Cornell; English; married; second pregnancy. Last menstrual period August 10, 1862. Labor commenced May 7th, 12 A. M., and terminated May 8th, 4 P. M. Two male children, 7½ lbs. each.

Patient is medium-sized, has always been healthy till the first confinement in March 8, 1860. She was then in labor for five days, the second stage lasting three days, child born dead, weighing 10½ lbs., and was taken from her with great difficulty, though she is not aware that instruments were employed. For three months following she suffered exceedingly from inflammation and sloughing of the parts, and subsequently placed herself under the care of Dr. T. A. Emmet, at the Women's Hospital, where she remained until August, 1861. The vagina was occluded by fibrous bands. These were all removed successfully by Dr. Emmet, though the operation induced metritis, and placed her life in jeopardy. She remained at home suffering from vesico-vaginal fistula, until March, 1862, when she returned to Dr. Emmet, and continued with him until the 16th of July, when she left, entirely well. About one month after returning home she became pregnant, and a week previous to her confinement, dreading the labor, came to Bellevue. She was admitted April 30th. General health good. Marked oedema of lower extremities. Slight dulness anteriorly and posteriorly over left upper lobe, but no marked auscultatory signs. Distinct aortic regurgitant murmur. Urine examined several times, detecting a slight shade of albumen; abundance of pus, but no casts. Dr. Barker examined her on the 8th

of May, and found the vagina partially occluded by several fibrous bands at its upper portion. The same night the waters broke. During the whole of the 7th, till 6 A. M., May 8th, she had sharp labor-pains at intervals of thirty minutes. The head then descended into the lower strait, and although the pains were strong and frequent, no perceptible advance was made until 9 A. M. Two foetal hearts were distinctly audible through the night, one just above the pubes, and the other just above the umbilicus. Dr. Barker had also diagnosticated a breech presentation on the previous evening. At 11 A. M. of the 8th the breech passed the vulva, and Dr. Taylor, being present, proceeded to deliver at once, on account of hemorrhage. The breech and shoulders offered but little resistance, but it was found impossible to deliver the head without perforation. The whole operation occupied an hour. The placenta came away a few minutes afterward. The hemorrhage then ceased. No ether nor chloroform administered on account of the cardiac murmur. At the close of the operation the pulse was 88, soft and firm.

The head of the other child could be easily felt, resting on the symphysis pubis, and no advance having been made at 4 P. M., Drs. Barker and Elliot having carefully examined the parts, and finding that the conjugate diameter was but $2\frac{1}{2}$ inches, and detecting no foetal heart, decided to deliver by perforation, which was done by Dr. Elliot.

During this last operation, however, the patient was brought fully under the influence of chloroform. Slight tendency to hemorrhage, and the binder not applied for three hours, until contraction was brought about.

The patient recovered without any other adverse symptoms than the reëstablishment of her vesico-vaginal fistula. For this she again sought Dr. Emmet's advice. He found that the old cicatrices had again contracted, and that the old fistula had again opened. He cured the fistula in one operation, but as pregnancy was not desirable, took no measures to insure permanent dilatation of the vagina.

Remarks.—This case points out the difficulties to be met with in degrees of deformity in which forceps are considered inapplicable, and the alternative of version would commend itself so heartily to many excellent authorities. And yet this original pelvic presentation in a moderate-sized child had to be terminated, after all, by the perforator. I regret not to have preserved memoranda of more cases of this kind which I have witnessed in the practice of others, where, in original and converted pelvic presentations, the final delivery had to be brought about after perforation of a dead child.

German experience in version as an elective operation in contracted pelvis.—As a further contribution to the literature of this subject, Dr. William T. Lusk has kindly prepared the following analysis at my request :

“Scanzoni has reported three cases of version in pelves measuring in the conjugate diameter respectively $3\frac{1}{4}$, $3\frac{1}{2}$, and $3\frac{3}{4}$ inches. All the children were born living. Martin reports one case of version in an oblique ovate pelvis in which the child was delivered alive. Rosshirt reports one case where the child was delivered dead. Birnbaum reports five cases in all of which the children were delivered dead. Poppel reports a case of version where premature labor was induced in the thirty-fifth week. The child died after ten days. In a second pregnancy of the same woman version was employed, but the child was delivered dead.

“Thus in twelve cases there were seven deaths. The five successful cases were in pelves with moderate deformity, unless we except Scanzoni’s case of $3\frac{1}{4}$ inches. In Scanzoni’s case, where the conjugate measured $3\frac{3}{4}$ inches, the woman had previously borne four children naturally. In four of Birnbaum’s cases the weight of the children varied between seven and eight pounds. The fifth case was complicated with prolapsed funis. In Martin’s case the difficulty in delivery arose from the broadest diameter of the head having been engaged in the narrowest diameter of the pelvis. This was readily obviated by version.

“In the Dresden Hospital Reports, furnished by Grenser, between 1861–1865 inclusive, sixty-three cases of deformed pelves measuring from $2\frac{3}{4}$ to $3\frac{1}{2}$ inches in the conjugate are reported. Of these, twenty cases were delivered naturally with nineteen children born living, and only one child born dead. There were three children born alive when the pelvis measured $2\frac{3}{4}$ inches. In one of these, where the labor lasted twenty-two hours, a living child was delivered weighing six and a half pounds. There were likewise twenty-seven forceps cases. In these fifteen children were delivered dead. One case of version, preceded by premature labor, terminated fatally for the child.

“In the returns from the Institute for Midwives in Cologne, 1860–1863, Fr. Birnbaum, Director, one hundred and fourteen cases of contracted pelves are reported. Of these there were sixty-one where the delivery was natural. In forty-three instances operative procedures were resorted to. The five cases of version, terminating fatally, I have already given. Two cases of pelvic presentations (extraction employed) were resuscitated. Out of twenty-one forceps cases there were seven deaths.

“In Munich two cases of version following premature labor, with death of child, have been reported.

“Thus in one hundred and seventy-nine cases of variously contracted pelves there were eighty-one instances of natural delivery, and in twenty of these cases where the result was exactly given, there were nineteen children born living. In ninety-eight cases art was employed. In forty-eight forceps cases there were twenty-two deaths. In eight cases of version all the children were delivered dead. In two breech cases, with extraction, the children were resuscitated.

“From these figures it appears that so far as regards the safety of the child, the best results are obtained when the head is gradually moulded by the uterine forces. Where the latter are insufficient the superiority of forceps to version is amply vindicated.

"To test the question of forceps *versus* version, Hennig carefully examined the reports for a series of years of fifty German lying-in institutions, which presented a total of 37,970 cases, and reported the results to the Obstetrical Society of Leipsic in 1863. He found in the few cases given where, in a contracted pelvis, version and extraction were both performed, all the children died either during the operation or shortly after. In pelvic births in contracted pelvis, without intervention of art, all the children died. Several directors of clinics were so fortunate as to have a large number of forceps deliveries without losing a single child. Even where some degree of pelvic deformity existed, there was a loss of only one in twenty-six cases. Head presentations, where disproportion between head and pelvis existed, gave as a whole, including several forceps extractions, thirty per cent. of deaths. In perfectly well-formed pelvises the mortality of healthy children at term amounted in breech presentations to 2.3 per cent.; in cephalic presentations, to 1.2 per cent.

"These figures do not support Prof. Simpson's idea that when the child presents preternaturally in a morbid contracted pelvis, the labor is easier and safer to the mother and infant than when the head presents.

"As a further test, Hennig wrote to the directors of most of the lying-in hospitals of Germany, asking for examples occurring in their practice bearing upon this subject. In answer he received reports of eleven cases, with the following results: Seven mothers and four children survived; two mothers and five children died. In two cases the result was not stated. The two mothers died previous to delivery, one of them surely from attempts at delivery previous to version. In neither case was death attributable to version. Three children were born dead, one (hydrocephalic) dying, and one died during delivery. Adding McClintock's cases to the eleven reported, there would be exactly the same number of children saved as of those that perished, viz., thirteen of each. Of the thirteen born dead, nine are reported as hav-

ing been alive previous to delivery. In these cases the conjugate measured from 3 to $3\frac{3}{4}$ inches. Out of a hundred similar cases occurring in the Poliklink in Halle and Leipzig, in which forceps were used, four died—a fact which does not speak well for version employed as a prophylactic measure in interest of the child. Excluding the Irish cases, however, and assuming that in only one of the German cases death was directly due to the operation, there would still be nine per cent. of deaths due to version. Going still further, and placing all the cases of vertex deliveries in contracted pelves, whether terminated by art or not, upon one side, and on the other the results of version in moderately contracted pelves, excluding all cases in which the child died or showed signs of feebleness previous to the operation, we would have thirty per cent. of deaths for the first, and thirty-six per cent. for the second, leaving thus still a small margin in favor of head presentation, even after avoiding every imaginable source of error.”

CASE 153.—*Deformed pelvis ; dwarf ; forceps ; version ; fever.*

Ellen Burnheimer ; Bellevue ; aged 29 ; first labor ; duration of labor, thirty-four hours. Female child ; still-born ; weight, seven pounds ; L. O. A. Mother died seventeen hours afterward, from puerperal fever, then prevalent in Bellevue Hospital.

Forceps failing to draw the head through the contracted brim, I delivered by version. Chloroform.

CASE 154.—*Deformity of antero-posterior diameter of brim ; forceps ; version ; perforation.*

Mary O'Connell, aged 33 ; third pregnancy. Bellevue. Drs. Andrews and Maury. Labor commenced May 15th, 10 P. M. ; L. O. A. ; terminated May 16th, 11.15 P. M. Child still-born ; girl ; weight, nine pounds.

Patient short stature, apparently well formed; married ten years; first child delivered naturally, and living, though somewhat before the full time. Four years later delivered after a tedious labor, of a still-born child. Mary was one of those unsatisfactory patients from whom one can with difficulty learn any thing, and when the answer is obtained one has to suspect that almost as much as the previous uncertainty. However, at 7 P. M., 16th, Dr. Andrews on carefully examining the patient appreciated the presentation and position, and rupture of membranes, and detected a diminution of the antero-posterior diameter of brim to somewhat less than three inches. He sent for me. I agreed with him entirely, believed it impossible for the child to pass, and anticipated very hard work. Sent for my colleague, Dr. Barker, who recognized the deformity, which was probably due to exostosis, and we agreed perfectly in our views of the operative procedure, viz., forceps first, and if they failed, version. Pulse 70. Condition of patient excellent. Anterior lip, however, down before the head, and œdematous, though readily replaceable. At 10 P. M., then, things being in this condition, no advance having been made, the head above the brim dipping the arc of parietal bone formed by the plane of the brim alone into the superior strait of the true pelvis, I applied my forceps, which were promptly adjusted and locked. I then made traction with all the strength which my arms afforded, sitting at one time on the floor and pulling in the direction of the superior strait with all my might. During one of these efforts I felt them slip slightly, and instantly stopping, re-adjusted them, and continued until we were satisfied that traction was of no avail.

I then withdrew the forceps, and passing my left hand within the uterus, brought down the right foot. This was not sufficient, as the other caught above the pubis, and was brought down with some difficulty. The hips being delivered, the cord was found to pulsate feebly. The arms were readily brought down, but no manipulation would suffice with

the head, which having necessarily turned with the sagittal suture parallel to the transverse diameter of the pelvis, happened so to close the right side as to forbid all hope of introducing the second blade of my forceps. The cord had now ceased to pulsate. Being by this time pretty well fatigued, Dr. Barker endeavored to bring the head through, but it was too firmly wedged to pass. I then introduced the perforator midway between the occipital protuberance and the mastoid process, and rattled Churchill's crotchet freely about within the cranial cavity. I then tried to introduce Dr. Thomas's ingeniously contrived craniotomy forceps, but though the blades are only the breadth of the middle finger, there was absolutely no chance for the second blade. Having then hooked the crotchet firmly over the occipital bone, Dr. Barker and I relieved each other in our tractions. He made two efforts, and in my third the head finally passed, one hour and fifteen minutes after the commencement of the operation.

The woman recovered perfectly, though there was puerperal fever in the house at the time, justifying, thus, what I sincerely believe to have been excellent practice, viz., commencing the operation before the patient was exhausted by fruitless efforts, and reflecting great credit on Dr. Andrews for discovering and appreciating the pelvic deformity when he did, instead of simply satisfying himself that there was a head presentation in a woman who had borne a living child.

CASE 155.—*Contraction of antero-posterior diameter of brim ; forceps ; version ; perforator.*

This was a case to which Dr. McLeod, then Resident Physician of the Lying-in Asylum, was called in consultation, Dr. Powers being in attendance.

The deformity was such that the finger readily enough reached the promontory, when passed along the plane extending to the lower part of the pubis. Her first child had been force-delivered and still-born ; she was now at term ;

and after a tedious labor, Dr. McLeod had applied forceps, the head not being engaged within the brim, and had failed to advance it. He then performed version, a difficult task in this case, with a large male child to contend with, and had brought away the trunk without injury, but could not advance the head by any traction. Failing entirely with the hand, and the child being dead, with the chin to the right ilium, he introduced the crotchet in the right orbit, and made strong traction, until the orbit and malar bone yielded before the instrument down to the alveolar process. He then requested me to see the case. She was under the influence of chloroform, administered by Dr. Powers. The woman's condition was good, and I tried manual efforts, as I have in these cases until I have felt and heard the bones of the neck crack, and without avail. With the permission of the gentlemen, I applied my forceps, and hung on it awhile to no purpose. In this case the blades could be readily introduced, so capricious are these cases, and there being nothing left in the right orbit to pull on, I proceeded to introduce Dr. Blot's. My reason for not using it at once was chiefly the position of the head. It was so high up, and so locked, that there remained but the choice of two places for perforation: one through the mouth, with the risk of its slipping through the hole made by the crotchet; and the other through the occipital bone, between the protuberance and the mastoid process, and here the entrance of the point could not be guarded, and the axes of the head had to serve as guides. Having opened the head and evacuated the brain Churchill's crotchet did the rest, the base of the occipital bone giving a capital purchase in these cases.

September 20th.—Patient recovered perfectly.

CASE 156.—*Transverse presentation; difficult version; prolapse of funis.*

M. W——, single; aged 25; number of confinements not stated. In labor March 9, 1857, for nine hours. Male child

still-born—nine pounds eleven ounces. J. Smith Dodge, Jr., House Physician.

At 11 A. M. Dr. Dodge found this patient in labor with regular pains and in good condition, and detected the left hand presenting through the unbroken membranes. Os the size of a dollar, long diameter of uterus oblique, fundus to the right. Foetal heart loudly audible over median line just below the umbilicus. At 4 P. M., as the cervix was not fully dilatable, I directed the injection of four or five quarts of warm water just within the os, when the cervix promptly relaxed and became fully dilatable. At 5 P. M. the hand only being within reach, I attempted version. On rupturing the membranes the cord instantly prolapsed to the vulva. I grasped the right foot with facility and brought it down to the vulva, *by which time the cord had ceased to pulsate*. All my efforts could not move the foetus further. Dr. Dodge, who assisted me ably, failed also. As the child was dead, I tried with a poor pair of craniotomy forceps to advance the leg while rolling the child away from the brim, but did not succeed. Fillet failed. Stopped then and sent for further aid, and Dr. Taylor arrived at a quarter of six. Hand, foot, and funis in the vagina, head to be felt above the brim. I then made another effort to get down the left foot, and aided by traction with a good pair of craniotomy forceps we succeeded in completing this difficult delivery. Placenta came away readily, uterus contracted well. Labor terminated at 7.40. Came promptly from under chloroform. Pulse 90. Condition good. Ergot and then morphia.

10th.—Comfortable, pulse 84. Much soreness and swelling. House physician did not succeed with catheter, but relieved the bladder with fomentations. 11th.—Pulse 120, tongue rather dry. No better success with catheter; doubtful about amount of water passed. Hands and feet cold, mind unclouded. Opium, camphor, and brandy. In the afternoon the face became distorted, breathing difficult, and she died rather suddenly.

Autopsy.—Heart, liver, and kidneys, in advanced fatty degeneration, appearances confirmed by Dr. Dodge's microscopic observation. Spleen almost pultaceous, and of claret color. Microscope shows fibro-plastic cells, free nuclei of splenic cells, but no pus. Uterus relaxed, not apparently inflamed. Bladder much injected, containing some opaque muco-purulent matter. Peritoneum injected arborescently, and in one place a small patch of recent lymph.

CASE 157.—*Presentation of nape of neck and shoulder in a contracted pelvis ; version ; blunt-hook.*

Bridget Nugent, aged 22. Third confinement, April 22, 1859, Lying-in Asylum. Duration of labor, sixty hours. Dr. Cock and I saw this patient at the request of the Resident Physician, Dr. Wilson, and recognized an under-sized conjugate diameter, which might, however, reach three and a half inches. When seen the waters had been evacuated fifty-three hours, and no foetal heart was audible. The presentation was obscure; it was either a natis or a shoulder; one limb attached thereto could be made out, and it was decided to draw it down for confirmation of the diagnosis. The patient having been brought under chloroform, I succeeded in doing this, after fracturing it at the commencement of my manipulation, when it proved to be the right arm, with the palm directed anteriorly when the radius and ulna were in the same plane, showing that the abdomen was directed anteriorly. On the withdrawal of the arm, an escape of very offensive discharges occurred. I then introduced my left hand and reached a foot, which I could not bring down. The impediment was found to be the head, which was flexed in a most exaggerated manner, the chin far down on the breast-bone, the head thus occupying the hypogastric region, and the nape of the neck being one of the presenting parts. I proposed to fix the head by a blunt-hook passed over the neck, and then to perforate and deliver by cephalic version.

Dr. Cock preferred podalic version, and brought the left foot to the vulva. Unavailing efforts were then made by both of us to complete the version, which failed, although Dr. Cock so arranged a fillet as to enable it to bear his weight. After this, we both used traction with craniotomy forceps, until the foot and malleoli were crushed. I then exhausted myself in successfully pushing the head up on the left side of the uterus, when Dr. Cock brought down the right foot, and delivered to the umbilicus, when he yielded from fatigue, and I succeeded in completing the delivery, though only with the blunt-hook in the mouth and fracture of the jaw.

Remarks.—In our experience an exactly similar case has never occurred, nor can a more difficult case of version be met with than this proved to be. It is possible that an original head presentation was converted into one of the right shoulder and nape of the neck from failure of the head to dip within the brim, and thus passing upon the *anterior* wall of the cervix, so as to become flexed on the chest in an extraordinary manner, as could be demonstrated after delivery. This flexion became increased possibly by flexibility of the articulations after the child's death. No post-mortem examination for fracture or dislocation. The region over the right acromion process and spine of scapula then became so enormously swollen as to obscure their distinctive features. The operation was one of the extremest difficulty, on account of the contracted pelvis, the very great length of time (fifty-three hours) since the waters were evacuated, the size of the male child, and the extraordinarily wedged position of the head, which so long defied our efforts for its dislodgment.

Subsequent history of the case.—The following report is furnished by Dr. Wilson, resident physician of the asylum, who attended the patient. I saw her two or three times, and had an opportunity of confirming the diagnosis of pleurisy and of the physical signs of phthisis.

After delivery patient weak and feeble. Gave brandy

and ergot until the uterus contracted well, and then gtt. xx of Magendie's solution of morphine.

April 22d, 9 A. M.—Pulse frequent and small. Two grains of opium every four hours. 12 M.—Pulse 90. Comfortable. Passed water with difficulty. Spts. æth. nit. dulc: 6 P. M.—Pulse increasing. Tinct. verat. viride four drops every four hours. Midnight.—Pulse 100.

April 23d, 9 A. M.—Pulse 120. Discharges offensive. Tongue dry. Skin hot. Tinct. verat. viride five drops, and four grains of opium every four hours. Noon.—Pulse 98, full and bounding. Face flushed. Four grains of opium every three hours. Verat. viride as before. 7 P. M.—Pulse 76. Soft, gentle perspiration. Tongue moister. Considerable tenderness over uterus. Complains of pricking sensations over the body.

April 24th, 9 A. M.—Slept a little during the night. Pulse 80. Pains over epigastric region. Tongue has a brownish-yellow coat. Respiration about normal. Passes water freely. Lochia free. Noon.—Pulse 100. Skin moist. Tenderness over abdomen. Tympanitis. 3.30 P. M.—Pulse 104. Skin dry. Tongue more dry. More tenderness. Five grains of opium every three hours. Tinct. verat. viride gtt. vj every four hours. 7 P. M.—Skin dry. Pulse 98.

April 25th, 1 A. M.—Pulse soft. Skin moist. 9 A. M.—Has slept a little. Feels sore. No pain. Pulse 84. Discharge free, not so offensive. 9 P. M.—Has passed a comfortable day. Pulse 90, soft. Very little tenderness. Skin moist. Lochia and milk free. Small doses now of opium and veratrum viride.

April 27th.—Has been doing well. Tongue cleaning. Pulse 90. Skin moist; but the window having been left open she had a chill and at noon pulse 100, bounding. Verat. viride gtt. iv. Opium increased. 2 P. M.—Pulse 110. Face flushed. Skin dry. Secretions arrested. Some tenderness. Five grains of opium and three drops of verat. viride. 4.30 P. M.—Pulse 100. Free perspiration. 5 P. M.—Four

grains of opium and four drops of verat. viride. 7.30 P. M.—Pulse 78, soft and full. Skin moist. Comfortable. Medicine to be continued p. r. n.

April 28th, 6 A. M.—Stopped medicine, doing well.

May 2d.—Dysentery. Typhoid symptoms threatening. Brandy and quinine. Bowels controlled by injections.

May 4th.—Doing tolerably well.

May 5th.—Four or five evacuations, watery, brown in color.

May 6th.—Eight evacuations in the night, yellow curds, offensive. Much prostrated.

May 7th.—Better.

May 8th.—Three or four a day. Mucus, slimy, tinged with blood. Tongue glossy. Pulse 100 and feeble. Much pain from swelling over the site of the parotid gland. Matter subsequently formed, and was evacuated.

May 9th.—Feeble. Bowels less frequently moved. Tinct. opii gtt. xxx and nourishment.

May 10th.—About the same.

May 11th.—Evacuations more frequent. Extract of log-wood.

May 12th.—Bowels only moved once last night.

May 15th.—Has continued to improve, but now presents symptoms of inflammation of the right pleura, which was promptly checked. Cough continues. Examination disclosed physical signs of phthisis.

May 26th.—Has continued to improve gradually. Insisted on leaving the asylum to return to her husband, in spite of Dr. Wilson's urgent remonstrances.

May 28th.—Has been doing well at home until about noon, when she was seized with difficulty of breathing and died very suddenly. No physician with her. No post-mortem allowed. (Edema glottidis?)*

* Vide Reports of the New York Academy of Medicine for 1857 and 1858 for a full discussion of Puerperal Fever, by Profs. Alonzo Clark, Fordyce Barker, the late Joseph M. Smith, and others.

CASE 158.—*Oblique cranial presentation from left uterine obliquity; forceps; perforator.*

Catharine Regan; 27; second confinement; thirty-three hours in labor. Female child. This patient was delivered in the New York Lying-in Asylum, May 12, 1859. When first seen by Dr. Thomas F. Cock, one of the physicians of the asylum, and myself, the uterine tumor was very obliquely inclined with the fundus to the left side, and the child's head was pressed firmly against the right linea ilio-pectinea, and the iliac fossa. Exact position obscured by the caput succedaneum. Brim somewhat under-sized, as the promontory could be too readily reached. Patient in an excellent condition. Foetal heart audible.

The alternatives of version, the lever, and the long forceps having been carefully considered, it was decided to keep the patient on her right side, and retain the uterine axis in correspondence with the long axis of the body by a bandage and compress, in hopes that the leverage thus exerted might dislodge the head and permit its descent. In the event of this not occurring by the morning the consultation was to be summoned again. On the following afternoon, Dr. Wilson, the resident physician, sent for us again, and at 8 P. M. Drs. Borrowe, Cock, and I arrived. Dr. Lee Jones was also present. At this time the head had moved from the right iliac fossa, but was firmly pressed against that side of the brim. Caput succedaneum very large. Foetal heart now inaudible, though Dr. Wilson had heard it at 5 P. M. Under these circumstances it was decided to attempt delivery with the forceps, room for which could only be obtained in front of the right sacro-iliac synchondrosis, and behind the left acetabulum. I therefore applied the forceps, and carried the first blade directly to its position without the customary spiral sweep—which would have been impossible—and used every effort to advance the head without effect. When all were satisfied that such efforts were fruitless, I perforated the head.

Great difficulty was experienced in withdrawing the head even after complete evacuation of the brain, and the blunt-hook was necessary for both shoulders, nor did the pelvis pass without assistance. Placenta came away readily. No hemorrhage. Chloroform. Patient made a good recovery.

Fracture of limbs in version, or in original pelvic presentations.—These accidents are sometimes unavoidable. They may occur in a fœtus with intra-uterine rachitis, in whom these fractures sometimes occur spontaneously and in remarkable numbers, as in a case related by Chaussier. The articulations may be by synostosis, and intra-uterine disease may have diminished or abolished the normal mobility of the joints.

They may occur from carelessness or faulty manipulation, and they may be the result of design. In children known to be certainly dead, one or more extremities may be purposely and unhesitatingly broken to facilitate the delivery; and this may be intentionally done to increase the chances of the child's life in conditions of danger.

I have heard the femur snap during gentle tractions with the fillet, made by most skilful hands abroad, and have seen a living child delivered by version with both clavicles fractured in Great Britain. Cases are given in this work where I have designedly fractured the arm, leg, and jaw of children known to be dead, with the blunt-hook or hand.

In cases where the child's life will be lost unless the delivery be promptly terminated, the fracture of an extremity is a very slender price to pay for success. And while the necessity for this contingency should occur but seldom, it must be promptly recognized and boldly met.

It has never occurred to me to fracture any other extremity in living children than the arm, and this has always united in a prompt and satisfactory manner without deformity; and so have other fractures in the neonatus which have come under my observation.

CASE 159.—*Version for transverse presentation ; fracture of right arm ; forceps.*

Kate Brown, aged 27, second confinement; fell in labor July 28, 1859, at 8 A. M., Bellevue Hospital, under the care of Dr. Reuben Cobb, House Physician, who recognized a transverse presentation, left shoulder presenting, head in right iliac fossa. I arrived at half-past 10 A. M., and the patient being under chloroform, delivered a living male child, weighing eight and a half pounds, by podalic version. The arms and head were retained above the brim, and I purposely fractured the right arm in drawing it down. Manipulation of the head being unsatisfactory, I delivered promptly with forceps and saved the child. The fracture was treated, I believe, by Dr. George Johnson, now of Brooklyn, then one of the house surgeons of the hospital. The mother did well.

CASE 160.—*Forceps ; occipito-posterior presentation ; fracture of arm.*

In a case of a primipara, seen with me by Prof. J. T. Metcalfe ten or eleven years ago, the head had failed to advance for more than six hours, and we proceeded to deliver with forceps. The head was in an occipito-posterior position, which, however, was not recognized, and the delivery was very difficult indeed. We relieved each other in our tractions, and finally succeeded when we were quite tired out. The child was a very large boy, weighing over thirteen pounds on the following day, and we fractured the arm with a blunt-hook in completing the delivery. The mother recovered without an unfavorable symptom, and the boy is now alive and hearty, the fracture having promptly united without any trace of deformity.

CHAPTER XIII.

INFLAMMATORY COMPLICATIONS IN THE SURGICAL TREATMENT OF THE DISEASES OF WOMEN.

Risk of developing inflammatory complications in the surgical treatment of women.—Carbolic acid.—*Case*: Retroverted uterus, with ovaries in the cul-de-sac forbidding the use of a pessary.—Use of pessaries.—*Case*: Retroversion of an hypertrophied uterus, with dangerous menorrhagia; benefit from pessary.—Cases illustrative of the tolerance of pessaries improperly applied.—*Case*: Pelvic cellulitis not connected with the puerperal state; rapid recovery.—Open air and sunshine in the diseases of women.—*Case*: Cystitis, peri-cystitis, peri-nephritis in a virgin.—*Case*: Cellulitis of abdominal wall in a virgin.—Remarks.—*Case*: Pelvic cellulitis and suppuration following sponge-tents.—Should pelvic abscesses from cellulitis always be opened?—*Case* of pelvic abscess opening into the peritoneal cavity.—Pelvic fistulæ.—*Case*: Abortion; metritis; hypertrophy of uterus.—The practice of abortion in this country.—Necessity for more hospitals.—Nursery and Child's Hospital.—Topical abstraction of blood from the uterus.—Beware of pregnancy.

The risk of developing inflammatory complications in the surgical treatment of the diseases of women.—The development either of metritis, of cellulitis passing possibly into suppuration, or of peritonitis, are risks which overshadow the surgical treatment of the pelvic organs in women, and are always kept in mind by the wary practitioner. Some of these dangers may be averted and others cannot, but in either event their early recognition is essential for the satisfaction of the practitioner and the benefit of the patient. Among the influential causes which are difficult to avert, and against which we have to contend in Bellevue, is the atmosphere of

a large general hospital, to which medical, surgical, and obstetrical cases are admitted. We find the results in the frequently recurring pelvic cellulitis of the post-puerperal state, to which the attention of the class has already been drawn, and which can be clinically demonstrated during each successive service. But in the surgical treatment of uterine disease the practitioner is often obliged to reject or to postpone methods of treatment which would undoubtedly be of service, if hygienic, atmospheric, or constitutional conditions were not recognizable and adapted to render these methods hazardous, if not dangerous.

Carbolic acid.—During the past year the wood-work of the lying-in wards of Bellevue has been dampened every day with a weak solution of impure carbolic acid. Dr. Done informed me that one of the professors of the Smithsonian Institute had expressed his confidence in its ability to destroy the germs of infection, and I introduced it in the hospital. Certainly we have had much less puerperal fever and inflammation since it has been employed.

So many women with chronic inflammatory affections of the uterus and pelvic organs are the subject of complicating cellulitis varying in extent and severity, that before any active measures are employed the whole pelvis should be explored as thoroughly as possible, in order to be sure that no evidences of cellulitis or peri-metritis can be found. The serious consequences which have so often followed the introduction of pessaries, sponge-tents, and exploring instruments, as well as the application of strong cauterics and milder medicaments to the uterus, might often have been obviated by the selection of the gentler methods of treatment alone permitted by the preëxisting pelvic inflammations.

Perhaps one of the greatest and most frequent mistakes committed by those who are commencing the local treatment of the diseases of women, is the neglect to appreciate other

conditions of the pelvic organs than those of the uterus alone. Careful conjoined, or bi-manual, manipulation of these parts, and the preliminary employment of all methods of examination, will often lead to the final rejection of methods of treatment which previously suggested themselves as the best, but which are seen to be too hazardous for the special case under consideration.

CASE 161.—*Retroverted uterus with ovaries in the cul-de-sac forbidding the use of a pessary.*

Thus in the patient in this bed, with a retroverted uterus, not hypertrophied, susceptible of reposition, but dropping down again into the cul-de-sac when the lifting force is withdrawn, there would be no method of treatment which, in my judgment and in my hands, would probably compare with the use of an accurately-fitted Hodge's closed pessary. But it is interdicted in her case by the presence of both ovaries in the cul-de-sac. These are not enlarged, not adherent, not inflamed. But they are *there*, and they are in the way, and they cannot be gotten out of the way just now, although this result may frequently be brought about in favorable cases; and the pessary could not push up the fornix of the vagina, and keep the uterus in its place, without pressing upon them; and if their presence were not recognized, if the dislocation were reduced, and the instrument then applied, while the ovaries were in the cul-de-sac, no matter how well it might be otherwise adapted, in a very short time it would have to be withdrawn on account of the pain it would produce, even if its presence had not already lighted up inflammatory conditions of the ovary, or of its appendages, or of the cellular tissue, which might more or less seriously complicate the future of the patient.

On the other hand, by abstaining from such treatment now, and by replacing the organ from time to time, prescribing for any indications, and aiding treatment by recommending such positions in bed as will favor the removal of

the ovaries from the cul-de-sac, the time may come when the field is unobstructed, and the instrument may be introduced and worn with the greatest benefit, and with the result, possibly, of a permanent cure.

A number of such cases have occurred to me. They are not infrequent, and, in my opinion, they are often overlooked, and are one of the avoidable complications which have tended to bring pessaries into disrepute. Indeed, when one reflects how difficult it is to find a ready-made boot which will fit a sensitive foot, one has no difficulty in appreciating the delicacy of the task of adapting an unyielding, or comparatively unyielding instrument to such delicate tissues. With this fact before your minds, never fail to be sure that neither the ovaries nor local inflammatory products are liable to be pressed on by a pessary; and beware of lighting up the smouldering embers of any pelvic inflammation by this or any other treatment however well adapted to obvious conditions of disease in neighboring parts.

Use of pessaries.—In a large proportion of the cases of retroversion and of retroflexion of the uterus which come under my care, I am in the habit of using the pessary of which I have spoken; but never without this careful preliminary examination, and never without directing that it should be examined, or withdrawn, at the first sign of pelvic disturbance. Theoretically, I would greatly prefer Scattergood's pessary, were it not for the unavoidable fœtor which attends its use, and imperatively demands its frequent withdrawal for cleanliness. There are cases to be met with in which other forms of pessaries are better adapted, and some in which a better instrument may be made at the bedside by a skilful twister of flexible metal.

But, as a law, my experience leads me to be satisfied with the various forms of Hodges' pessary (closed) which the India-rubber makers give us, and which can be readily selected, or bent into the proper shape. While, however, the

utmost caution is demanded for their selection, adaptation, and trial, I often meet with patients who wear them continuously with benefit and impunity for months and even for one or two years; passing the summer in travelling, and crossing the Atlantic with them in situ.

CASE 162.—*Retroversion of an hypertrophied uterus, with dangerous menorrhagia; benefit from pessary.*

One patient of mine, subject to hemorrhages of the most alarming character, whose uterus was enlarged and greatly retroflexed, flowed on one occasion until there was no radial pulse and she had sunk into syncope. Her safety demanded the most active treatment. Dr. Wynne, Dr. George A. Peters, and Dr. Marion Sims saw her with me then and subsequently. I was obliged to tampon the vagina, compress the femoral arteries, hold up the arms and legs, and administer beef-tea and stimulants lavishly by the mouth and by enemata, to save her life. Yet, after these immediate dangers had passed, and the uterus had been replaced, and kept in position by a well-fitting Hodges' closed pessary, very little subsequent treatment was necessary; and so great was the comfort that the patient experienced from the treatment, that she would never allow the instrument to be taken out of the vagina for a moment during eighteen months; and now, after the lapse of five or six years; she looks back on the introduction of the pessary as the turning-point in the history of her case. Before this time she had been abroad for advice, and had twice received benefit in Paris from the actual cautery.

Tolerance of pessaries improperly used.—It must be remembered, however, that the presence of a badly-fitting pessary, which has occasioned marked pelvic cellulitis, may still be supported by the inflamed and patient organs. Thus, last winter I removed, before the class in this hospital, a large circular box-wood pessary, perforated with

small holes, from the vagina of a German woman, which was fitted into a groove formed in the pelvic tissues, and these were so hardened by pelvic cellulitis as to feel like wood. There was no suppuration in the cellular tissue, or ulceration of the vagina, and the woman was able to walk; but the pessary had begotten an attack of cellulitis of the most general character, and which forbade vaginal manipulation of the pelvic organs. Dr. Shekleton told me that a woman once entered the Dublin Lying-in Hospital, of which he was Physician-in-chief, with the signs of pregnancy and labor. The pupil on duty recognized something very abnormal in the presentation, and a box-wood pessary was withdrawn which had been inserted before conception, and had remained there without the knowledge of the patient.

The situation in these cases of cellulitis may be described by a simile, which seems to me not inapposite. The healthy uterus and appendages float in the pelvis as easily as a ship at her moorings; but, while the ship may be fastened in one position by the freezing of the stream, so may a general pelvic cellulitis fasten the uterus in situ, and either limit or forbid its movements. And, as the fastened vessel may be careened by the new forces, so may the uterus be deflected, bound down, elevated, or depressed by the varying sites, or amount of the effusion into the areolar tissue.

An example of these influences and results may be found in the patient in an adjoining bed, with the following history. Her case illustrates emphatically the occurrence of cellulitis without any known cause, and resolving with gratifying and prompt success under treatment.

CASE 163.—*Pelvic cellulitis not connected with the puerperal state; rapid recovery.*—*Dr. Nicoll, House Physician.*

Catherine Hanna, aged 20; United States; married; seamstress; admitted into Bellevue April 1, 1867. Two weeks before, she had been seized with great pain in the

lower part of the abdomen which had persisted, and she had suffered great pain in micturition during the last week. She cannot explain the cause of her symptoms. Vaginal examination discloses increased heat and sensibility of the vagina. Urethra normal. At the junction of the urethra with the bladder a rounded tumor is felt, which is hard, and extends across the right side of the vagina, diminishing in size, and reaching nearly to the right ischiatic spine, where it seems to be in intimate relation to the pelvic wall. It also passes to the cervix uteri, and seems to have pushed that organ toward the spine of the left ischium. The tumor has a hard woody feel, and is very sensitive. Through the posterior cul-de-sac a similar swelling connected with the first can be felt. The tumor can be clasped between the fingers in the vagina, and the fingers above Poupart's ligament, the bladder being empty. The case was diagnosticated as pelvic cellulitis, and the bladder directed to receive special attention. The bowels were moved by castor-oil, warm poultices were kept on the abdomen, and five grains of the iodide of potassium were given three times a day. *April 4th.*—She now passes urine without pain. The abdominal poultices were replaced by cotton covered with oiled silk. There is less tenderness. *10th.*—Tenderness gone. Feels well. Still kept in bed. *24th.*—Careful vaginal examination and conjoined manipulation ascertain that the induration has entirely disappeared. The parts are perfectly normal. Treatment discontinued. *27th.*—Discharged cured.

Remarks.—Here, then, is a case of pelvic cellulitis promptly terminating in recovery, and originating in influences unknown to us, and certainly not related to any of those which we have been considering. When the patient was first admitted, I was apprehensive that the relations of the effusion to the bladder and the difficulty of micturition might indicate some vesical complication, or that the whole trouble might depend on disturbances of the bladder. And accordingly the urine was drawn with the

catheter immediately after micturition in order to prove that the bladder was thoroughly emptied, and carefully examined with the microscope to prove that it was healthy. When this element of clinical interest was thoroughly eliminated, the cellulitis alone was left to treat; nor would I have been quite willing that a single point of the treatment should have been omitted. The absolute rest in bed to prevent the risk of exposure to cold, and the strain of the erect position; the mild laxatives to prevent the accumulation of hardened fæces and the irritation from their passage; the careful attention to the bladder; the warm applications to the abdomen which so greatly relieved the pain; and the iodide of potassium—all contributed to ward off present risks, and promote her restoration to health.

With regard to the iodide of potassium, I am free to confess that my habit of prescribing it in these cases may savor of routine; but such cases as the one just detailed, which have given me the most marked examples of rapid recovery, have been those in which this agent has been employed. From the year 1850, when Sir James Simpson, in the exercise of his prodigal hospitality and unwearied kindness, first taught me to appreciate pelvic cellulitis by the touch, my hospital and private opportunities have never allowed me to pass much time without its recognition; and I am very confident of the fact that I see suppuration follow pelvic cellulitis less frequently during the last eight or nine years than before I gave the iodide. At all events, if I am mistaken, or if the facts are attributable to other influences, still the agent can do no harm; and I am specially desirous of not recommending it unduly, for no healthier medical habit can be encouraged for myself or for my medical brethren than that of skepticism regarding the effects of drugs, until their value and their uses shall have been triumphantly demonstrated. I shall never forget the rapid improvement which followed the use of the iodide in one poor woman, in this hospital, with extensive pelvic cel-

lulitis, which had suppurated, and had opened into the vagina, the rectum, through the abdominal wall in several places, and by fistulous tracks below Poupart's ligament.

Benefits from exercise in the open air and sunshine in the diseases of women.—Do not let my remarks be misunderstood regarding the advantages of rest in bed in these cases; and indeed those which I am about to make are capable of a much wider range of application. The sedentary habits, household opportunities, and freedom from out-door engagements of women, facilitate and encourage a habit of remaining in bed for relief from pain, and the habit is too frequently indorsed by medical advice, since it may result in the most unfortunate moral and physical invalidism, and often develops the germs of latent tubercular predisposition. We have always to struggle against this tendency in these wards. Leaving out of consideration that large group of cases for which the best physician is he who can best tempt the patient to the enjoyment of suitable exercise in the sunshine and open air, and confining my remarks to the cases before us, we must remember that the rapid improvement of Catharine Hanna can neither be always attained, nor even hoped for. For many of these patients, many months of intelligent supervision are essential elements in the problem of recovery, and while during much or all of this time the risks of suppuration are imminent or recurring, the general health could scarcely fail to be seriously and perhaps permanently impaired by confinement to the room or bed. I have often wished that my patients might be carried in sedan-chairs and litters through the streets without attracting observation and remark, or even that Bath-chairs were in fashion at our watering-places; for some of these patients cannot ride in carriages. The Hon. Mrs. Skewton had privileges which would be priceless to many invalids. In the house and in one's own grounds, however, this indication may be met in various ways, and must always be kept in view; while the grand boulevard of

water which surrounds our city offers the pleasantest method of transition from its heated walls and crowded streets, to the sea-shore or to the inland woods.

The complication of cystitis in these cases may be forcibly illustrated by the history of the following case, which came into my wards last September, and the results of the autopsy were shown to the class in attendance on my clinical lectures :

CASE 164.—*Cystitis, peri-cystitis, and peri-nephritis in a virgin*.*—*Dr. Herman Smith, House Physician.*

H—— I—— ; unmarried ; aged 23 ; native of New York ; admitted to Bellevue September 11, 1866. The patient is well built, and states herself to have enjoyed perfect health until six weeks before admission, when she suffered from unexplained retention of the urine for twenty-four hours. There is no suspicion of tubercular tendency. These disturbances then ceased entirely for a fortnight, when she began to suffer from lancinating and bearing-down pains in the pelvis, which have been so severe during the past fortnight as to keep her in bed. During this time the urine has constantly dribbled from her, and her bowels have been much confined. About three weeks ago she noticed a tumor in the hypogastric region, which has been gradually increasing in size. When admitted, the expression of her face was haggard, and of unfavorable omen. Skin cool, pulse small and frequent, tongue heavily coated with a brown fur. Vomits frequently. There was a hard smooth tumor just above the pubes, reaching half way to the umbilicus, broader above than below. This was somewhat tender. Vaginal examination detected a moderately retroverted uterus, and a hard bulging tumor on the anterior wall of the vagina. Three pints of bloody

* Vide "Clinical Remarks on Certain Affections of the Bladder in Women," by the author, in the *New York Medical Journal* for April, 1867.

and very offensive urine were drawn by the catheter, when evidences of peri-cystitis were recognizable through the anterior wall of the vagina, especially toward the outlet. Twelve hours after, a pint and a half of bloody and offensive urine were withdrawn by the catheter, and found to contain blood-corpuscles, pus-corpuscles, and quantities of vesical epithelium. The patient entertained a horror of the catheter, screaming in the most piteous manner from the pain of the gentlest manipulation; still the catheter was used much more frequently, and the bladder washed out with medicated injections. Warm poultices were kept on the abdomen, the skin excited by the hot-air bath, and stimulants were given. 16th. —Urine less fœtid and bloody, and somewhat diminished in quantity. Surface cold and blue. Scarcely any pulse at wrist. Persistent vomiting. Intellect clear. 17th. —No marked change, except that she is obviously weaker. Beef-tea and whiskey given by enemata. Urine less fœtid, and much diminished in quantity. She steadily continued to sink, and died at 7 A. M. of the 20th, having survived much longer than had been anticipated from the symptoms of collapse.

The autopsy was made six hours after death in the presence of Prof. Van Buren. On opening the abdomen some coils of small intestine, and part of the omentum, were found attached by adhesion to the posterior and superior portion of the bladder; slight adhesion of the walls of the Douglas cul-de-sac; the connective tissue between the pubes and the bladder much thickened; internal surface of the bladder very greatly congested, softened, of a dark color, and presenting in portions a gangrenous and pultaceous appearance; ureters normal, kidneys much congested, especially in the pelvis of the left, and the results of peri-nephritis were shown in a number of small abscesses which surrounded the right kidney, the capsule of which was thickened.

The following history of the patient seen in the next ward affords an illustration of some of the vagaries of cellulitis:

CASE 165.—*Cellulitis of abdominal wall in a virgin.*—*Dr. Nicoll, House Physician.*

Fannie Brown, aged 18; Irish; servant; unmarried; began to menstruate when thirteen years old, and has always been healthy and "regular" until four months ago, when she was taken with a severe pain in her back (lumbar region), and with pain and soreness on the right side of her abdomen. She soon after this noticed a swelling in this region (abdomen), which pained her very much when touched, but otherwise gave her very little annoyance. When the swelling commenced she had a chill, followed by fever, and since the commencement of this illness she has not menstruated, has lost a great deal of flesh, and is feeble. She is now emaciated, with a feeble pulse, and anæmic. Digestive organs in good condition. There is a moderate uniform prominence in the abdominal wall on the right side of the linea alba, bounded below by Poupart's ligament, and above about an inch and a half below the floating ribs. Toward the median line it is limited by a well-defined margin, an inch external to the linea alba. On the right side it gradually disappeared, but may be said to be limited by a line drawn from the false ribs to an inch in front of the ant. sup. spin. process of the ilium. The swelling is exquisitely sensitive to the touch, and has a hard, woody feel. The fingers can pass under the margin near the linea alba, so as to show that the swelling is within the abdominal wall, and conjoined manipulation excludes the sexual organs from any participation. Hence cellulitis of the abdominal wall was diagnosticated. *April 2, 1867.*—The tincture of iodine was painted over the site of the swelling twice during every twenty-four hours. Under this and the internal use of the iodide of potassium the most marked and rapid improvement followed.

The cases of which the histories have just been given, and the cases of cellulitis in the post-puerperal state, which

have been shown you in my service, have fortunately done well, but there is no such thing as the practice of medicine without the occasional observation of results which we regret to witness, and the case of Nancy Henry, before you, offers an illustration both of the risks of cellulitis as a complication of uterine treatment, and of the development of suppuration in spite of our best efforts. It is, of course, possible that the cellulitis in the case of Nancy might have developed without other apparent cause than in the case of Catharine Hanna, but we must never shrink from applying the *post* and *propter hoc* to our reverses, although we ought most sedulously to criticise them in our successes. No habit tends more surely to the improvement of the physician's knowledge and methods of practice, whatever effect it may have on the serenity of his mind.

Before recommending the use of the sponge-tents in the case of Nancy Henry, I hesitated for some days, for although the physical signs indicated their use, both as a means of reducing the hypertrophy, of restraining the flow, and possibly of recognizing some small fibroid or other cause for the menorrhagia; still, the bad constitution of the patient, and the hospital atmosphere, suggested a clinical reluctance to active treatment in this case, and has often deterred me from its use in others. But the improvement which followed the first tents encouraged the resort to others.

CASE 166.—*Pelvic cellulitis and suppuration following sponge-tents.*—*Dr. Nicoll, House Physician.*

Nancy A. Henry, aged 35; United States; widow; a nurse; began to menstruate when sixteen years old, has had two children, the last was born at seven months, in 1850, the labor having been brought on by fright, and since then she has been an invalid. She was troubled with menorrhagia for two years, and since then has always been subject to profuse flow. She is pale, care-worn, and somewhat emaciated.

The whole uterus is enlarged, cervix hypertrophied, os patulous. The sound passes three and three-quarter inches. Dr. Elliot recommended the use of sponge-tents, and they were introduced by Dr. Nicoll from time to time with care, and the woman was relieved by them. After this treatment had been continued from time to time for a month, she suddenly began to complain of pain in the left side of the abdomen, low down, and of pain in passing water. Treatment was stopped and appropriate sedative measures used. The pains continued, some febrile action manifested itself, and on vaginal examination the evidences of peri-metritis (cellulitis) were found. The uterus was immovable, and the tissues surrounding the cervix were very much indurated. Cotton and oiled silk were ordered to the abdomen, opiate vaginal suppositories for the relief of pain, and hot-water vaginal injections, with extra diet, and the iodide of potassium. *May 15th.*—It has been evident for some days that suppuration was advancing, and to-day the pus has been freely discharged per vaginam; the opening is distinctly recognizable to the touch in the fornix of the vagina. Pus continued to be discharged at intervals until the 23d of May.

Should pelvic abscesses from cellulitis always be opened promptly?—A clinical point of interest, to which the attention of the class was called at the time for its decision in this case, has been the question whether an incision should have been made when the pus was recognized, or whether we should have allowed it to find its own way out, as we decided to do. In the present case I decided to let the matter escape through its own channel, though the danger of its rupturing into the peritoneal cavity was pointed out in my clinical remarks at the time. The progress of the case has, at least, been as satisfactory as it could have been if an incision had been made; and therefore the result may justify the practice. For my own part, nowadays, as a rule, I rarely find it necessary to open mammary abscesses, abscesses in

tonsillitis, and in cellulitis. Mammary abscesses must of course be opened, if their anatomical site, or the great vital tenacity of the skin, or very severe pain from tension, demand the operation; and abscesses in the deeper tissues of the throat may imperatively demand the knife; while if the pelvic abscess break into the peritoneal cavity one may well regret that the vaginal or rectal wall had not been previously punctured.

CASE 167.—*Pelvic abscess opening into the peritoneal cavity.*

It occurred to me in the autumn of 1861 to lecture clinically in this hospital on a case of pelvic cellulitis in the post-puerperal state, and to decide to leave the pus to find its way out when it should form, as it then threatened to do. In a few days afterward the patient was attacked by peritonitis, from the breaking of the abscess into the peritoneal cavity, and this accident was verified by the autopsy. I have been informed that one other case of the same character happened in this hospital.

Now, such an untoward result would seem to demand imperatively that the risk of so fatal an accident should always be obviated by a resort to timely evacuation of the pus; and such must be the law inevitably, if this sad contingency be not demonstrated to be a very striking exception to the rule. That such has been the case in my experience in a field singularly fruitful in pelvic cellulitis, I can unhesitatingly aver, and it is not probable that statistics will show other results. And, therefore, it is my belief that it has been better to accept these rare contingencies, rather than to inculcate the practice of precipitate incisions for the escape of pus from the pelvic organs. The difficulties that attend the recognition of pus in these regions, and the vascularity of the tissues, should be remembered in connection with the fact that the accumulation will generally be discharged in a safe manner through a well-channelled outlet. While I believe that this

expectant plan is best adapted, as a rule, to secure good results in a large number of cases, I yet regard the decision in each as elective; and if it be decided to make an opening, I would only urge the practice which I always follow, viz., the introduction of an exploring needle before making any free or deep incision.

Pelvic fistulæ.—One powerful argument in favor of timely evacuation of pus by the knife, might be found in the likelihood that such a practice might diminish risks of permanent fistulous tracks. Patients have come under my care with these openings high up into the rectum, or into the vagina, depending on the formation of matter in the neighborhood of the broad ligaments, and giving rise to great inconvenience from constant or intermitting discharges, with constitutional disturbances in direct relation to the frequency and degree of the inflammatory symptoms.

Many of these women are made wretched in mind and body by these disturbances, and yet these fistulæ can never be treated by incision, and are often so rebellious to injections that these must frequently be abandoned, and we are driven to rely solely on time and roborant treatment. My experience has taught me that it is best to commence the injection of these fistulæ with tepid water in very small quantity, and with every precaution, lest we might do more harm than good. In the very case of Nancy Henry, such a fistula may follow the suppuration. Still it is fair to state my personal conviction that these permanent fistulæ are quite infrequent, and that while they must be accepted, they need not be anticipated. In one autopsy where no complaint had been made of these troubles, and the patient had died from other causes, I saw an old fistula extending from the right ovary way across the pelvis and opening into the rectum.

If we kept our minds fixed on the exceptions, rather than on the probabilities, in the practice of medicine, we would have even more anxious and harassing lives than now fall to our lot, and we would not be as good practitioners.

In the same ward with these patients is another with the following history, which illustrates the favorable results of a different treatment for uterine conditions not altogether dissimilar.

CASE 168.—*Abortion ; metritis ; hypertrophy of uterus.*
—*Dr. Nicoll, House Physician.*

M—— S——, aged 25 ; Irish ; domestic ; married. Began to menstruate at the age of fourteen ; and has been regular excepting when pregnant. She has been pregnant twice, and gave birth to the first child at term. Three years ago when lifting a very heavy mattress she experienced a sharp and violent pain in the lower part of the abdomen, and began to bleed from the vagina. She was confined to bed for six weeks by this trouble and was told by her physician that she had prolapsus uteri. Since then, after any exertion, she has had leucorrhœa. She became pregnant for the second time in June, 1866, and illegitimately. When two months and a half gone, she states that she paid a physician in a neighboring city five dollars for procuring an abortion by the use of instruments. Great loss of blood followed, and since then she has been subject to profuse hemorrhages. When admitted to the hospital, in April, 1867, she was very pale and anæmic, and weakened by the loss of blood. She complained of constant and severe pain in the hypogastrium. The uterus was found to be considerably enlarged, and the cervix uteri seen to be lacerated transversely. The surfaces of the laceration were ulcerated. She was placed under a tonic course of treatment, with rest in bed ; and the cervix was touched with a drachm of tannin to the ounce of glycerine once in the twenty-four hours. In ten days the ulceration was cured, and then a free application of the vesicating collodion was made to the cervix, and repeated in a couple of days. After the second application, the discharge was very free from the blistered surface. After the lapse of a

week this was reapplied and for a fourth time seven days later. Meanwhile a large blister had been applied over the hypogastrium. All of these applications were followed by marked relief and benefit, and the patient was discharged at her own request on the 29th of May, in a satisfactory condition.

Remarks.—In this case the benefits from treatment were more marked and immediate than can always be attained; and you have seen that the temperament of the patient is of that complaining and nervous character, that assurances of great improvement may be accepted with a confidence not as safely accorded to complaint.

The practice of abortion in this country.—We have no reason to doubt the history which she gives us regarding the abortion which was procured upon her at her own instance. The public prints, the National Medical Association, and the profession, have drawn the attention of the community to the melancholy frequency and comparative impunity which marks the practice of the abortionists. Still the daily press publishes the advertisements of these people in such thinly-veiled language that the purport cannot be mistaken; while pregnant women are tempted to solicit such treatment by the necessity for concealing their shame, from ignorance of the vitality of the foetus, and reluctance to incur the cares, risks, and responsibilities of maternity. Let us hope that the movement so prominently advocated by Dr. Storer may result at least in arresting the horror of this practice in many families, by removing the errors and misconceptions regarding the value of foetal life.

Necessity for more hospitals.—For such cases there can be no other repressive measures than those of punishment, except in the multiplication of lying-in asylums, and such noble enterprises as that attached to the Nursery and Child's Hospital of this city, where unfortunate women can be cared

for during their confinement, while their names and history are concealed, and where foundlings are received.

The fact should be known far and wide; that in the city of New York ladies of the first social position not only give to this enterprise their money and their counsels, but grace it with their personal supervision.

Topical abstraction of blood from the uterus.—In the case just narrated, the application of leeches to the uterus or the topical abstraction of blood might have been indicated, were it not for the fact that the patient had already lost so much, and was so anæmic. Another patient in the same ward has just told you of the relief which she has experienced from the use of the uterine scarificator, and there is no doubt of the benefit to be derived from the judicious use of this method of treatment in appropriate and sthenic cases.

We can take blood from the uterus by leeches, and by scarifications, which may be superficial or more penetrating; and we can take it from the lining membrane by Simpson's ingeniously-contrived instrument for cupping, and Storer's concealed knife. As all the "uterine cases" contain a scarificator, it is most probable that this method is the one in most general use. The application of leeches requires a certain skill, and demands certain precautions, nor can they be used without delay and the liability to fatigue the patient. Still, in appropriate cases, where there is a moderate amount of increased uterine sensibility—with soreness, fulness, and weight—in patients of a full habit, and those especially prone to recurring congestions, they are often so comforting, that many of my patients, having experienced relief on one or more occasions, have often sent for the leeches and prescribed them for themselves. They are especially beneficial in such cases occurring in hearty, full-blooded women, with scanty menstrual flow, who are approaching the grand climacteric, and render their journey more safe by occasionally opening the safety-valves.

While, however, these remarks are clinically accurate, there is no doubt whatever in my mind that practitioners and patients may allow this train of reasoning to lead them to the unnecessary and even injudicious routine use of topical uterine depletion.

In my own practice these measures were resorted to by me more frequently in former years than they are at present; and while I recognize fully the temptations to the treatment, and the benefits which I have signalized, my advice now would rather be, in cases which admitted of delay, to reserve depletion for those in which other measures had failed.

We all know what is meant by chronic metritis, although we admit that discordant and imperfectly appreciated conditions are embraced under the name; and, for my own part, my tendencies are to the use of tonic and constitutional treatment, with fresh air and well-directed exercise, and visits to such mineral springs as meet special indications; to the free use of local sedatives, including large injections of hot water, rendered still more sedative by stramonium, or by other agents, as hip-baths and anodyne suppositories made with the butter of cocoa, the value of which ingredient has only been recently appreciated abroad; to the removal of pressure from the intestines in stout patients by an abdominal bandage which shall lift the intestines, and not crowd them into the pelvis, and in certain cases by intra-vaginal pessaries; to the removal of exciting causes; to the soothing of localized inflammatory tracts of mucous membranes by topical applications, remembering always the risks from developing perimetritis and pelvic peritonitis, or aggravating these complications when they exist; and to the application of such agents as have so benefited the patient, M. S. before you.

We must struggle against a tendency to run in the grooves of routine in our practice as physicians; it is so strong a temptation to the busy man who has reason to believe himself as successful as his neighbors; it saves so much trouble,

and so much of that mental wear and tear which oppress us all; and the motion is so pleasant and insidious that one may well be pardoned for a reluctance to struggle against its influences.

It is probable that a very large number of the leeches applied, or intended to be applied to the cervix uteri, in reality take hold of the vagina; and the worst bleeding that has come under my observation in these cases, has occurred under these circumstances. It is of course readily controlled by cold or astringents, but the accident may have made the difference between the beneficial and the prejudicial effects of leeches. Be sure to tampon a patulous cervix uteri before applying leeches, lest the very painful and distressing uterine colics which follow the entrance of a leech into the cavity make you regret the neglect. Be sure to count the leeches after the application has been made, that all present may be relieved from anxiety regarding the whereabouts of a missing one.

Beware of pregnancy.—Be sure, in all topical applications to an hypertrophied uterus—whether of the sound, the cautery, the blister, the leech, the caustic, the ointment, or the liquid—that the hypertrophy is not that of physiological pregnancy. Patient and physician may be honestly unsuspecting, and ignorant of the situation. Let the question of pregnancy always be present to your minds. In cases of doubt, abstain from local treatment and from frequent examinations.

CHAPTER XIV.

CERTAIN CONDITIONS OF THE BLADDER IN WOMEN.

The clinical necessity for ascertaining the amount of urine which women may pass under certain conditions.—*Case*: Retention of menses by an imperforate hymen; operation.—*Case*: Dysuria from aphthous ulceration.—*Case*: Retroversion of impregnated uterus; great accumulation of urine; successful reposition and recovery.—*Case*: Unilocular ovarian cyst in the rectovaginal cul-de-sac, complicating parturition and the cause of death.—*Case*: Retroversion of impregnated uterus.—*Case*: Retroversion of impregnated uterus.—Choice of catheter.

The clinical necessity for ascertaining the amount of urine which women pass under certain conditions.—From motives of modesty, and certain conditions of disease, women are peculiarly liable to retain their urine from choice and from necessity in circumstances which do not affect the other sex. Many cases in this work demonstrate the clinical importance of appreciating the amount of urine passed by a pregnant woman with albuminuria. Nos. 94 and 99 illustrate the result of ulcerative perforation of the bladder, while in Case No. 164 peri-nephritis and cystitis were the causes of retention.

The following cases show the results of other influences, which do not affect the male.

CASE 169.—*Retention of menses by an imperforate hymen; operation.*—P. C. Barker, M. D., House Physician.

Alice, æt. 17; born in Connecticut; of delicate organiza-

tion; admitted to Bellevue June 23, 1860. She never enjoyed good health from her infancy. In July, 1859, she experienced her first menstrual effort, which was not attended by any discharge. The menses have regularly appeared since, the flow never. The mother, and the physicians to whom she applied at various times, attributed the absence of discharge to the general condition of the girl's health, and administered iron and emmenagogues of various kinds. These only served to increase her sufferings. After a time the periods were marked by bearing-down pains like those of labor, which progressively increased in severity, and awakened more and more constitutional excitement. On Thursday, the 21st of June, the last effort began. She suffered more pain in the back, and the bearing-down pains were more than usually severe, keeping her awake all night. She passed water with some difficulty, and obtained a movement from her bowels. On Friday a physician was called, who prescribed something to quiet her sufferings, and left. Short relief followed. Another sleepless night, no water passed. *Saturday morning.*—Two physicians called, who ordered salts and senna, and advised that she should be sent to the hospital. She was admitted in the evening (23d), having neither had a movement from her bowels nor passed a drop of water for forty-eight hours.

Symptoms on admission.—Very restless, anxious, tossing and moaning with pain. Pulse 112, tongue slightly coated. Palpation discloses an abdominal tumor, hard and tense on pressure, and perfectly dull on percussion. Catheter introduced with little trouble, and fifty-three ounces of bloody urine drawn, after which the tumor could no longer be felt. She immediately fell asleep, and on awakening in half an hour had a very free discharge from the bowels. The external organs of generation were not deformed, but the vagina was perfectly occluded by an imperforate hymen, rendering the introduction of the finest probe impossible. The finger in the rectum discovered that the vagina was so completely

distended that no fluctuation could be detected. The accumulation seemed to fill the pelvic cavity. 12 P.M.—Sleeping quietly. 24th, 9 P.M.—Some pain in abdomen, relieved by catheterization. Thirty-three ounces of urine drawn off, which contained both pus and blood. Dr. Elliot sent for, who decided on operating, after a careful examination; and in anticipation of the great danger to the patient, determined to make a very small incision, and allow the accumulation to drain away gradually. Choosing a pair of sharp-pointed scissors (by the advice of Dr. Gouley), he began to cut in the direction of the course of the vagina. The membrane was nearly half an inch in thickness. About four ounces of a tarry-looking fluid were allowed to trickle through a very small opening, when the patient was replaced in bed, and ordered Magendie's solution four drops, and oiled silk to abdomen. The administration of chloroform having produced hysterical symptoms, it was discontinued before the operation was commenced. 6 P.M.—Pulse 140; sol. morph. sulph. (Magendie) gtt. vii. 9 P.M.—Pulse 130; sol. morph. sulph. (Magendie) gtt. iv. 25th, 8 A.M.—A large quantity of menstrual fluid has drained away during the night; bladder had subsequently partially relieved itself; $\frac{3}{4}$ vj of urine drawn by catheter; pulse 120; feels better; has passed a comfortable night; still has a little pain; sol. morph. gtt. iv. 12 M.—Pulse 112; sleeps most of the time; vagina dilated by bougie. 6 P.M.—Pulse 120; gtt. iv. 11 P.M.—Pulse 120; gtt. v. 26th, 8 A.M.—Pulse 120; has slept most of the night; $\frac{3}{4}$ xv of urine drawn with catheter; discharge still continues. 3 P.M.—Injected warm water into vagina, to dilute the discharge, which still pours out. Nearly a quart in all must have escaped. Some pain; sol. morph. gtt. iv; larger bougie introduced. 6 P.M.—Pulse 124; gtt. vj; catheter regularly passed. 27th, 8 A.M.—Pain in abdomen, with nausea; some tympanites; gtt. vj; appetite, which has been very good, now failing. 12 M.—No pain; respiration scarcely affected; gtt. iv. 3 P.M.—Free movement from

bowels, after which tympanites less marked; some vomiting, but nothing of green color; pulse 104; gtt. vj. 10 P.M.—Pulse 128; gtt. vj. 28th, 8 A.M.—No pain, slept very well; passed water three times in the night, still not all discharged; menstrual fluid slowly coming away; gtt. iv. 6 P.M.—Has had a movement from her bowels; vagina now admits index-finger; a tumor detected in the left iliac region, character of which is obscure; no pain; pulse 130. 10 P.M.—Pain, pulse 135; gtt. vj. 29th, 8 A.M.—Passed her water very well, but catheter introduced to prevent an accumulation; pulse 120; gtt. iv. 3 P.M.—Fluctuation detected in the tumor of left iliac region. 9 P.M.—Restless; gtt. vj. 30th, 8 A.M.—Pulse 120; rather weak; vagina well dilated. 6 P.M.—Very little pain; gtt. iv.

July 1st, 8 A.M.—Comfortable, but quite weak; had a severe chill during the night, which lasted for an hour; solut. quiniæ sulph. ℥ss ad ℥iv. ℥ss ter in die, beef-tea, eggs, etc.; pulse 125. 2d.—Vaginal injection of a warm solution of the chlorinate of soda for fœtor; pulse 120. 3d.—Injection repeated; continues much the same; gtt. iv. 5th.—No discharge from vagina; fluctuation distinct in left iliac region; urine still contains blood; treatment continued, with addition of brandy ℥ss every hour. 6th.—No discharge from vagina; comfortable. 9th.—There has been no especial change. Lager beer was substituted for the brandy. Two severe chills to-day, lasting an hour each; has been talking of going out of late; has been up walking in the ward. 10th.—Quinine as before; pulse 125; some pain; gtt. vj. 12 M.—Feeling better, she sat up for some time to have her bed arranged, after which diarrhœa; has had four evacuations since 8 A.M.; ordered tr. op. camph. 3 i after each discharge. 6 P.M.—No discharge from bowels since 1 P.M.; pulse 130, and quite feeble; brandy ℥j and carbonate of ammonia gr. x every two hours. 12 M.—No pain; has had two more discharges from the bowels; tr. op. camph. 3 ij; brandy and ammonia as before. 11th.—No further move-

ment of the bowels; pulse 132, very feeble; stimulants continued. 10 A. M.—Sinking; pulse barely perceptible. 11 A. M.—Died.

Autopsy.—Permission obtained with great difficulty, and only after a promise that nothing should be removed, and only the abdomen examined. Weather warm. Rigor mortis not very marked. Body moderately well nourished. Abdomen slightly tympanitic. On section no fluid escaped. Omentum firmly bound by adhesions in both iliac as well as in the supra-pubic regions. In the left iliac region, resting upon the peritoneal covering of the iliacus internus muscle, was a collection of pus, not exceeding a drachm in quantity, shut in by walls, composed of omentum and fibrin. The intestinal serous coat was polished and smooth, and not covered with exudation, excepting a portion of the upper part of the ileum, and sigmoid flexure of the colon. The portion of the ileum referred to was adherent to the fundus of the bladder, and presented perforations which corresponded with some of many small perforations which riddled the fundus of the bladder. The vesical mucous and muscular membranes were softened, and the color very deep. The viscus seemed to be undergoing disintegration. Right kidney contracted and fatty; pelvis and ureter greatly distended and containing pus. Left kidney large and fatty; ureter and pelvis normal. The sigmoid flexure of the colon was bound down by adhesions, and presented a patch of about two inches in its long diameter where the tissues presented a gangrenous appearance and several perforations. The uterus measured about four inches in length, its os and cervix fully dilated. Os internum not, however, obliterated. Arbor vitæ very distinct. Uterine sinuses presented no abnormal appearances on section. Uterine orifices of Fallopian tubes not dilated. The left Fallopian tube, at about the distance of one inch from the uterus, terminated in a mass formed from the organs contained in the left broad ligament, but so transformed by disease as not to be separable in the limited time afforded

by the exigencies of the case. Right ovary the subject of unilocular cystic degeneration, the cyst being about an inch and a half in the long diameter. Other organs not examined for the reasons given.

Remarks.—The extraordinary results of this post-mortem examination lend the deepest interest to this case, and make it, I believe, one of the most remarkable on record. It never occurred to me that the fluctuating tumor in the left iliac region, detected on the 28th, was the product of the peritonitis, though I now believe it was due to pus enclosed by peritoneal adhesions. Whether the diarrhoea was produced by the discharge of this pus into the colon may be believed, but cannot be positively predicated; nor could we have anticipated the perforations through the fundus of the bladder and the portion of ileum thereunto attached, unless, possibly, from much more thorough microscopic examinations of the urine than were made. With such post-mortem evidences of peritonitis as we found, it is pretty certain that a high grade of general peritonitis must have yielded to the treatment employed. Those reading the record of the case, however, can scarcely appreciate the comparatively satisfactory condition of the patient in all respects, except the urine, for some days before the tenth. She felt able and willing to leave the hospital, and her mother proposed to take her out. So much better had she progressed than was apprehended, both from the extreme danger which always attends these operations, and from the other complications existing, that my very unfavorable prognosis was much modified; and I was neither prepared for the sudden termination nor for some of the strange revelations of the autopsy.

An important practical reflection in this case and many similar ones, is the neglect of proper vaginal examinations by the physicians who had seen her before her admission to the hospital. A number of instances have come under my observation, in which much mental unhappiness and physical suffering have been allowed to continue which could have

readily been relieved by intelligent examination; and the converse of the proposition is equally true.

CASE 170.—*Dysuria from aphthous ulceration.*

A lady from a neighboring city came under my care for great suffering in passing water; the vulva was found to be much inflamed, the seat of aphthous ulceration, and sensitive beyond measure. She menstruated, but informed me that although married for some years, she never had complete connection with her husband, on account of a "deformity;" that she had consulted a physician shortly after her marriage, who told her that she was deformed, and that there was a "bony obstruction." I took Dr. E. Lambert, then one of the house physicians in Bellevue, to the case, and he kept her under the influence of chloroform, while I introduced a full-sized speculum, and disclosed a well-formed vagina and uterus.

Retroversion of the uterus in pregnancy.—The following cases of retroversion of the impregnated uterus illustrate clinical conditions which urgently demand early recognition, and thorough treatment.

CASE 171.—*Retroversion of impregnated uterus; great accumulation of urine; successful reposition and recovery.*—*Dr. Mola, House Physician.*

Isabella Armstrong, aged 25, was admitted into Bellevue Hospital on the 27th of October, 1863. She was a healthy woman, and stated that her health had always been good. Has had two children, both now living and in good health. After the second confinement she suffered from falling of the womb, which came down near the vulva, but was never treated for this trouble. Four months ago her menses stopped. She suffered from morning-sickness and the other evidences of pregnancy as in her previous gestations, and now has milk in the right breast. On the 15th of October she

went to a funeral, and on getting out of the carriage slipped and struck her abdomen against a gravestone. She was much prostrated by the shock, and had to be assisted home in the carriage by a friend. She has since been confined for most of the time to the recumbent posture before entering the hospital. I saw her in the afternoon of the 28th, and recognized a large tumor in the recto-vaginal cul-de-sac; the os uteri could be reached with difficulty through the vagina, narrowed by the projection forward of the posterior vaginal wall, but could be recognized on the level with the upper part of the symphysis pubis. The patient had walked the whole length of the ward to the examining-bed; she presented no symptoms calling for immediate relief; she had no evidences of inflammatory action. Pregnancy was evident from her history and symptoms, though neither fetal heart nor fetal movements were recognizable. Some cathartic medicine, which had been given on the previous evening by Dr. Mola, had not operated, and I ordered castor-oil to be given, preparatory to a thorough examination on the morrow.

October 29th.—Bowels have been freely moved. Her condition as before. She again walked across the ward to the examining-bed. But now, before proceeding to the thorough examination of the case, I inquired about the bladder, when she declared that she had not passed water for a week, though, she stated, some had dribbled away at times when she walked. This was the first allusion made by her to the state of her bladder. A catheter was then introduced and *one hundred and forty-four ounces of urine* were drawn off in the presence of my colleague, Prof. Barker, and other gentlemen. This urine was of natural color, good specific gravity, of healthy odor and reaction, and free from albumen. The abdomen diminished in size, and the diagnosis of a retroverted pregnant uterus could be clearly made out.

She was then brought at once under the influence of chloroform by one of the house physicians, while another, standing on the bed, raised her hips high in the air, so that

the abdomen looked downward toward the bed. I then introduced the fingers of the right hand in the vagina, and pressing the fundus of the uterus through the posterior vaginal wall, succeeded in an instant in passing it along the curve of the sacrum and leaving it well anteverted. In so doing I distinctly felt the ballottement of the fœtus.

After the effects of the chloroform had passed, she said that she felt perfectly well and comfortable. All traces of the tumor, which had so greatly distended the posterior cul-de-sac, and which had been so readily grasped between the fingers of one hand in the vagina and one in the vulva, had disappeared, while an ample vagina and pelvis could be recognized.

The urine drawn from this patient and the patient were shown at my clinical lecture. She never had an unfavorable symptom afterward. She never once needed the introduction of a catheter, nor showed any further tendency to uterine displacement or hemorrhage; and after ten days of close observation she left the hospital, somewhat wearied with what she had considered to be unnecessary care.

The *British and Foreign Medico-Chirurgical Review* for April, 1864, gives the history of the accumulation of fourteen English pints of urine in the bladder of a man, aged 63.

Vide "Transactions of the Pathological Society" of London, vol. xv., p. 136, for four cases of exfoliation of the mucous membrane of the bladder. Also "Transactions of the London Obstetrical Society," vol. iv., p. 13.

The following case is interesting in its relations to the differential diagnosis of such tumors as those just considered, as well as in its other obstetric relations:

CASE 172.—*Unilocular ovarian cyst in recto-vaginal cul-de-sac complicating parturition, and the cause of death.*—*Drs. Fernandez and De Rosset, House Physicians.*

Jennie Syzer, aged 24, was carried into Bellevue Hospital, January 22, 1861, at 6 P. M., in a very feeble condition.

Respiration hurried; pulse 120, and slender; skin moist; body emaciated, sallow, anæmic-looking. Abdomen slightly tympanitic, lochial discharge scanty, milk secreted in small quantity, eight ounces of non-albuminous urine drawn with a catheter. Ordered Dover's powder, and a warm anodyne poultice to the vulva, which was swollen and painful. It appeared from the patient's account that she had been delivered instrumentally by a midwife of a dead child about a month before.

January 23d.—Symptoms of peritonitis better marked. Blister to abdomen; morphine and veratrum viride, with beef-tea. In the evening large clots of blood came from the vagina, with much hemorrhage, which yielded to ice, ergot, and the tampon; brandy freely given. *24th.*—Pulse 148. Tampon removed; no hemorrhage; ergot and brandy with an enema, as the rectum was full of fæces. On visiting the patient this day, and hearing the history of the hemorrhage, I dictated the following memoranda. I had made no vaginal examination on the preceding day, as the symptoms of peritonitis then overshadowed all others:

Posterior wall of vagina bulging forward so as to make vaginal examination with the finger difficult. Os uteri not readily discernible to the touch, though a flattened opening exists above the top of the symphysis pubis, which could not be thoroughly explored. Examination through the rectum shows that the tumor felt through the posterior vaginal wall impinges on the calibre of the rectum, and can be readily grasped between one finger in the vagina and one in the rectum. There is a feeling communicated to the finger in *portions* of the tumor as though its contents were fluid. The hand laid upon the supra-pubic region recognizes a globular tumor, and sudden pressure from within the rectum communicates an impulse to this tumor, not a sense of fluctuation, but as though they formed part of one and the same tumor. The patient's condition being one of great exhaustion, the moderate use of opium and thorough support were directed.

25th.—General condition so far improved as to allow us to place her on her hands and knees, and in such other positions as to make as thorough examination as the very contracted vagina would permit—three fingers could be introduced. No os uteri could be reached. It seemed as though there were partial occlusion of the upper part of the vagina, and not unlike a cul-de-sac. No result obtained with a uterine sound. Rectum bougie readily introduced. Slight pulsation detected within the vagina. 27th.—Patient's condition has been about the same. Pulse ranges from 120 to 140. Slight bloody and fœtid discharge from the vagina. Sims's speculum shows the color of the vagina to be natural. I then introduced an exploring-needle through the posterior wall, and pus escaped, when I enlarged the incision sufficiently to admit a uterine sound readily, when thin sanious pus flowed freely. Brandy increased in quantity, and carbonate of ammonia given. 28th.—Considerable vomiting, not repeated. With Sims's speculum and gentle pressure a quantity of the sanious pus discharged through the incision. Quinine. 29th.—Passed water herself for the first time since admission. Incision enlarged, and a quantity of pus evacuated, which ran steadily for six hours, smelling very like asafetida. While the pus was flowing, my hand placed over the supra-pubic globular tumor suddenly mapped out the uterus in its totality, not as though rising from a deflected position, but as if suddenly standing out in relief against a tumor placed posteriorly. Length normal. Os uteri to be reached an inch and a half above the pubes.

February 4th.—The discharge has steadily continued, with the same odor, increasing in amount when the bowels—which were always regular—were moved. The strength has been steadily failing. Mind weakened. Died this afternoon.

Autopsy twenty-one and a half hours after death.—In the presence of Drs. Taylor and Barker, and the house-staff. Weather cold. Rigor mortis well marked. Body emaciated.

Abdomen not swollen; opened by a crucial incision; no fluid nor gas escaped. Evidences of peritonitis confined to the hypogastric and iliac regions. Adhesions of a firm character. Uterus in its normal axis, perfectly involuted, rises above the pubes. Left ovary, somewhat enlarged, rests upon the left side of the fundus uteri. Recto-vaginal cul-de-sac obscured by adhesions on a level with the brim of the pelvis. Horizontal and descending rami of the pubes sawn through and the bone removed. During this procedure pus escaped freely from the incision in the posterior vaginal wall. Bladder presenting no appearances of interest; dissected from the vaginal wall. Incision through the anterior vaginal wall prolonged through the uterus. Os uteri shown to have been perfectly dilated, and almost entirely obliterated, except at two points where the lips were thickened, and projected from the vaginal wall. Recto-vaginal cul-de-sac occupied by a tumor, into which a sound could be carried through the incision in the posterior vaginal wall described in the history of the case. This tumor was ovarian, unilocular, containing pus, and a mass, about the size of a small orange, of fatty matter, hair, and a part of a maxillary bone, with one incisor and two bicuspid teeth. Liver and stomach healthy. Kidneys apparently fatty. Heart of normal size; valves healthy—pericardium universally adherent. Lungs healthy. Brain not examined. These specimens were shown to the Pathological Society, and were preserved by Dr. Teats in the museum of Bellevue Hospital. He also found, in preparing the specimens, an opening in the upper part of the cyst evidently made by ulceration, the existence of which had not been appreciated before.

CASE 173.—*Retroversion of impregnated uterus.*

Dr. Young asked me to visit Mrs. — on the 14th of August, 1862, who had come to the city about two days before, suffering from dysuria, from which she had been com-

plaining about two weeks. She had been treated in a neighboring city, and had once had her urine drawn with a catheter, though no thorough vaginal exploration seemed to have been made. On the morning in which I saw her, Dr. Young had visited her and found her unconscious, and evidently in an alarming condition. He had drawn off two-thirds of a large chamber-potful of clear urine with a catheter, and had recognized a retroverted uterus. He had been obliged to give chloroform to introduce the catheter. I found her unconscious, with a very bad facies, eyes like those of the dying, and recognizing nothing; slight froth on the lips; pulse very rapid and feeble; skin neither cold nor warm; not perspiring; respiration hurried. She tossed, moaned, threw herself on her elbows and knees; frequently rolled in a rapid manner to the edge of the bed, as though desirous of throwing herself on the floor, and necessitating the constant presence of some one to restrain her. No paralysis; no special tendency to roll in the same direction. Unconscious, evidently, but not raving. On examination I found the uterus entirely retroverted, the os on a level with the upper rim of the symphysis, the fundus down to the sacrococcygeal articulation. Os sufficiently open to admit the finger. The uterus seemed about three months impregnated. To effect the reduction, we put her on her hands and knees, holding up the hips, as it was necessary to give her an anæsthetic (chloroform used) to quiet her. Pressure on the posterior vaginal wall caused half a tumblerful of bloody and very offensive urine to come away. Continuing the manœuvre, I was enabled to push up the fundus uteri; and then, by introducing two fingers within the rectum, to continue pushing it up until it cleared the promontory. But the abdominal straining would force it down again. The vagina was short, and the cul-de-sac very deep. Satisfied that the uterus could not then be permanently replaced, I desisted. Not altogether liking the respiration, we gave a prompt trial of Marshall Hall's method, and she soon breathed as well as ever; con-

sciousness as before. Without an anæsthetic no satisfactory uterine manipulations could have been made. Believing that the case must terminate fatally, and as she could scarcely swallow, we agreed that the colpeurynter should be used to cushion and replace the uterus, that the bladder should be kept emptied, and that she should be nourished by enemata.

In five hours we met again. She was quieter, and sitting up, but if possible looked worse. Bladder nearly to the umbilicus. Half a chamber-potful of bloody and very offensive urine drawn. Advised recumbent posture. 15th.—Continues to sink. Renal secretion copious, and drawn with catheter. Some sent to Dr. W. H. Draper for examination did not reach him. The uterus has never fallen back as low as it was, and is movable. Sank steadily, and died during the night. No autopsy permitted.

CASE 174.—*Retroversion of impregnated uterus.*—Dr. H. Lyle Smith, House Physician, in charge.

B—— C——; Irish; married; aged 40; admitted to Bellevue October 9, 1865, for retention of urine. Short, sparely built. Has always been regular and temperate in her habits, and has never suffered from any serious illness. Is the mother of five children, all living. Labors natural. Last unwell 1st of June. The stoppage attributed to cold; has never supposed herself pregnant. Five weeks ago the urine "stopped." Before this time she had been obliged to pass it frequently day and night. The stoppage was accompanied by great pain and "bearing down." After suffering two hours, she was relieved by a catheter. Until the 4th of October she was able to void a little at a time, when she was totally unable to pass any, and the catheter was used twice a day. Vaginal examination detected the cervix uteri tilted up toward the pubes, and pressing upon the urethra. A large, firm, rounded tumor in the posterior vaginal cul-de-sac, not movable, and seemingly wedged in

the pelvic brim. It was continuous with the uterine neck, better appreciable through the rectum, and not appreciable through the abdomen. Areola moderately discolored. Papillæ not developed. Retroversion of impregnated uterus diagnosticated. One and a half pints of urine drawn by the catheter. Several fingers being then introduced in the vagina, while the woman was on her back, by slight pushing and tilting the uterus returned to its place and could be recognized above the pubes. She subsequently passed her urine freely and easily, and has done so without the least trouble until to-day (October 14th), the day of her discharge. Her bowels have also moved regularly, which they did not do before admission. No special cause can be assigned for the retroversion.

Choice of catheter.—In the parturient woman the flexible male catheter should always be used. It would be better for women if the ordinary silver female catheter had never been devised. It is surprising to see the distance to which the elastic male catheter may have to be introduced in some cases before any urine can be obtained. The bladder may be pushed up, the urethra stretched, by the foetal head, and I have met with cases where the water could not be drawn until delivery had been effected. When the practitioner fails to procure any urine with the catheter during the progress of the labor, he should be sure at least that a long, flexible catheter has been fully introduced within the bladder. The importance of deciding this fact unequivocally is of the utmost value in its relations to diagnosis and prognosis in vesical and renal complications.

CHAPTER XV.

DANGERS FROM COMPRESSION OF THE FUNIS.

Case: Prolapse of funis.—*Case*: Pelvic presentation and arrest of head in the pelvis; compression of cord.—*Case*: Compression of cord in a cephalic presentation.—*Case*: Transverse position of head; cord around the neck of a still-born child.—Dangers to the child from compression of the funis.—Cord around neck.—*Case*: Forceps; six coils of funis around the neck.—*Case*: Forceps for danger to child.—Knots in the cord.—Pressure on the cord.—*Case*: Feet, funis, and head presentation.—*Case*: Head and funis; forceps.—Prolapse of the funis.—*Case*: Prolapse of funis; interesting autopsy of child.—*Case*: Feet and funis presentation.—Forceps or version.—*Case*: Prolapse of funis; forceps.—*Case*: Prolapse of funis in a breech presentation.—*Case*: Prolapse of funis.—Conclusions.

CASE 175.—*Prolapse of funis*.—*Dr. Forman, House Surgeon*.

Eliza Lamb; aged 26; Irish; admitted to Bellevue about the middle of February, 1867, in the eighth month of her first pregnancy. Labor commenced April 2d, at 9 A. M. At this time there was well-marked right obliquity of the uterus. Dr. Forman recognized a vertex presentation, but the head was so high that the position could not be distinguished. The patient was properly placed in bed to obviate the uterine obliquity. At half-past nine, while Dr. F. was away, the membranes ruptured and the cord prolapsed, the head not having yet engaged. Five minutes afterward Dr. F. arrived and found a loop of the cord in the vagina. He immediately placed the patient on her knees, with her breasts down on the bed, and endeavored to replace the funis. But

by this time the head had become engaged, and his efforts were fruitless. In fifteen minutes after rupture of the membranes the cord had ceased to pulsate. The position of the head was R. O. A. From this time the case was left to nature. The second stage lasted four hours, and was characterized by severe uterine contractions. The head seemed large in proportion to the pelvis, the parietal bones overlapping about a quarter of an inch. The third stage was accomplished in about ten minutes. Child still-born, and presented a livid appearance.

CASE 176.—*Pelvic presentation ; arrest of head in pelvis ; compression of cord ; delivery of child by traction on its lower jaw.*—*Dr. Forman, House Surgeon.*

Mary Reiley ; aged 23 ; Irish ; single ; admitted to Bellevue March, 1867, in the eighth month of her second pregnancy. Labor-pains commenced in the morning of the 12th of April, and when examined four hours afterward, the os was found about the size of a silver dollar, and one of the child's feet could be distinctly felt through the membranes. From this time until the rupture of the membranes three hours afterward, the os had gradually dilated to almost its full extent ; the feet coming down in the vagina. During a severe pain the membranes ruptured, and the feet were born. The pains then became so frequent and powerful that the body was expelled in a few minutes, but the head was arrested in the pelvis, and was not dislodged by several very severe expulsive efforts. The pulsations of the cord, which had been quite strong, now becoming almost imperceptible, Dr. Forman introduced his fingers in the child's mouth, and delivered the head by traction. The child was asphyxiated, but was resuscitated after fifteen minutes' labor. The third stage was accomplished in fifteen minutes. The transverse diameter of the child's pelvis occupied the right oblique diameter of the mother's.

CASE 177.—*Compression of cord the cause of fetal death in a cephalic presentation ; autopsy of child.*—Dr. Forman, House Surgeon.

Bridget Hanlon ; Irish ; aged 24 ; single. Third pregnancy. Admitted to Bellevue April 12, 1867. Labor-pains commenced about four hours before admission, and the membranes ruptured in the carriage a few minutes before her arrival. The patient was immediately sent to the lying-in ward, and seen by Dr. Elliot, who was making his daily visit. He recognized the os uteri to be well dilated ; large and well-ossified head in the superior strait ; R. O. A. Foetal heart distinct a little below and to the right of the umbilicus. The second stage lasted about three hours. Uterine contractions frequent, extremely violent, and the child was born at 5 P. M. As soon as the head was born, it was noticed that a loop of cord—*pulseless*—protruded from the vagina, lying across the child's chest. The child was immediately delivered by introducing two fingers in the axilla, but it was asphyxiated, and all attempts at resuscitation proved futile. After delivery of the child, a large dose of the fluid extract of ergot was given to the mother, firm pressure with the hand made over the fundus uteri, friction with ice to the abdomen and thighs, and a lump of ice in the vagina, were used to cause contraction of the uterus and expulsion of the placenta, as the woman flooded a little all the time. These means failing, an attempt was made, after twenty minutes, to "press" off the placenta, but this also failed. A child was also applied to the breast, and a further dose (five drachms in all) of the fluid extract given ; but three-quarters of an hour having passed without effect, and the flow continuing moderately, Dr. Forman introduced his hand into the cavity of the uterus and removed the placenta, having to separate a portion which was firmly attached to the fundus. Pains soon coming on, the hand, with the entire placenta and a mass of clots, was expelled. The uterus contracted firmly, and remained contracted until several hours afterward, when she

was removed to another bed from the necessities of the ward, and another hemorrhage recurred, which was readily controlled by pressure and cold.

April 15th.—Doing well.

Autopsy of child.—This displayed effusion of a clear serous fluid into the abdominal cavity. Cerebral blood-vessels very much congested, although the thorax was first opened and the viscera removed. No cerebral extravasation nor other evidences of disease to be found. Skull very well ossified.

CASE 178.—*Transverse position of head; cord around neck; still-born child; autopsy.*—*Dr. Mead, House Surgeon.*

Julia Regenberger; aged 25; German; primipara. The waters broke May 23, 1867, 3.45 P. M. When first examined, the head had engaged in right occipito-iliac transverse position. Foetal heart could be distinctly heard. Head descended in this position. Pains were very strong, but the head did not rotate. The cranial bones overlapped considerably. The hand was passed into the vagina, and the head was manually rotated during intervals of pain. Occiput now engaged under symphysis pubis, and face soon swept over the perineum. Second stage of labor $5\frac{1}{4}$ hours. Cord was around child's neck; this was not pulsating. Delivery was now accomplished as rapidly as possible, but foetal heart was not audible after birth.

Post-mortem examination of child's body.—Sub-pleural and sub-pericardial ecchymoses were found. Lungs not expanded. Liver and kidneys congested. A few small ecchymoses on the thymus gland. Brain, normal.

Mother discharged entirely well.

The dangers to the child from compression of the funis.—Compression of the funis is probably a more frequent cause of foetal death than is generally supposed. We are familiar with the danger in pelvic presentations, and especially in cases of prolapse, but we cannot recognize its influences so satisfactorily in many cases where the circulation

of the funis is interfered with, while yet the child and the cord are entirely within the uterus.

The circulation may be interfered with by direct pressure, by knots in the cord, and by too great traction on the cord. Of these, the first is infinitely the most frequent. Doubtless, this pressure in utero often provokes such reflex foetal movements as may relieve the funis, and so dispel the risk. In other cases, the shutting off of the current of blood from the mother awakens prematurely the respiratory need (*besoin de respirer*), and the child may present at the autopsy the evidences of death from this cause, as in Case No. 100. In rare cases, after rupture of the membranes, it may fortunately happen that the premature respiratory efforts may be maintained by such a supply of air as may suffice for the child's necessity—a result which we aim to secure by pressing back the perineum with the hand when the head is retained in pelvic presentations, or by the use of such instruments as were recommended by Benjamin Pugh.*

Cord around neck.—The cord is so frequently around the neck when living children are born, as to render us indifferent to the risks which many undoubtedly run from this accident. Dr. Reed has ingeniously suggested that these coils are formed at the time of the passage of the head through the pelvis. Still this contingency may cause great danger, and cost the child its life. The coils may be so tightly superimposed as to produce dangerous and irremediable pressure; they may take up so much of the funis as to involve the risk of their being drawn steadily tighter as the head descends, as in Case 178; they may interfere with the advance of the head. These conditions are very exceptional, but not the less baleful, since for that reason as well as for others they are less liable to early recognition; and because in delivery by forceps we may hasten and develop that very danger, from tightening of the coils, which hangs over the child.

* Vide a paper by the author on "Still-Births," published in the "Transactions of the New York State Medical Society" for 1867.

In such cases the foetal heart is the obstetrician's compass.

CASE 179.—*Delivery with forceps for the sake of the child; neck encircled six times by funis.*

My friend Dr. Eustace Trenor sent for me on the 31st of January, 1858, to see Mrs. H——, a primipara, aged 27, at full term, well built, robust, with a well-formed pelvis. Seen by Dr. T. at 8 P. M., 30th. Membranes then ruptured three hours. Pains irregular and feeble. Condition good. Os just admitted a finger. Summum of foetal heart intensity to the left. No uterine souffle. 6 A. M., 31st.—Os fully dilated. Pains strong since 3 A. M., and so continued until delivery. 9.30 A. M.—Dr. Trenor sent for me, on account of non-advance of the head, anxious expression of patient's countenance, and dry tongue, and because he could not satisfy himself that the foetal heart continued audible. I saw her at 11 A. M. Head pressing against bony outlet. Post. font. to right acetab. Vagina cool; perineum rigid. Foetal heart extremely indistinct, but yet, as I thought, audible. Decided to deliver, principally for the child's sake. Applied forceps with concavity directed to right acetabulum. Did not need pivot. Delivered promptly a living child, weighing six and a half pounds, *with cord six times around neck*. Patient under the influence of chloroform given by Dr. T. Placenta came away nicely. On cutting the cord close to the placenta, we wrapped it six times around the child's neck, when the small amount left satisfied us that it was the probable cause of delay.

Perhaps in the following and similar cases pressure on the cord was the source of danger:

CASE 180.—*Forceps for danger to child.*

November, 1857.—Mrs. —, aged 23; first; L. O. A. Pains good, parts well relaxed, os dilated, head in inferior strait, patient under chloroform. In short, every thing prom-

ised a natural and easy labor. On auscultating the foetal heart—as it is always my habit to do from time to time—I was surprised to find it growing slow and feeble. As it did not rally, I requested Dr. G. A. Peters (who was in the vicinity) to manage the chloroform, and I delivered a living female child, quite livid, and partially asphyxiated, with forceps. Revived by the customary means. Mother did well.

Knots on the cord.—Several of these cases have come under my observation, but I do not remember that they were a cause of death in any other case than that of a premature foetus about three months old. In this case, the cord was drawn in a tight knot between the foetus and the placenta, and was, in the opinion of Dr. Gouley and others, as well as of myself, the cause of death.

Pressure on the cord.—My last service in Bellevue, on which this work is based, presented many examples of danger from pressure on the cord. In the case of Julia Regenberger, No. 178, such was undoubtedly the cause of death, and the sub-pleural and sub-pericardial ecchymoses a pathological indication of the efforts made by the foetus for premature respiration.

In the case of Bridget Hanlon (No. 177), I do not doubt that pressure on the funis was the cause of the child's death, though there were no evidences of premature respiration. The effusion of clear serum into the abdominal cavity without evidences of inflammatory action is of interest in relation to similar appearances in cases adduced of death from prolapse of the funis. Such contingencies as occurred in this case are apt to be unrecognizable.

Case No. 176, of Mary Reiley, offers an additional illustration of the dangers from this risk in pelvic presentations, and of the advantages of timely and intelligent care. While, however, many of these dangers may be irremediable and unavoidable, one occurred in case No. 175, which peculiarly appeals for prompt and skilful aid, though in any event there must ensue a great loss of foetal life.

Prolapse of the funis is recognizable, and demands immediate treatment. If the funis cannot be replaced while beating satisfactorily the child must be immediately delivered by forceps or version, as in the following case :

CASE 181.—*Head and funis ; forceps.*

Mary Loftus ; aged 29 ; third labor. Head presentation complicated by prolapsed funis. She had been in labor five hours, when I delivered her with forceps of a living male child, partially asphyxiated. Chloroform. January 20, 1854. Out-patient, Lying-in Asylum.

CASE 182.—*Feet, funis, and head presentation ; version ; child dead before the operation.*

Mary Powers. December 11, 1853. Lying-in Asylum. Out-patient. Report condensed from the notes of Dr. Wm. H. L. Starks, under whose care she was placed.

December 10th.—At midnight labor commenced. Second confinement. Membranes descending into the vagina like the “finger of a glove.” Os somewhat rigid. Funis and feet found to present. Funis pulsating feebly. 7½ A. M.—Membranes ruptured. Liquor amnii less than usual. Pains scarcely returned until 4 P. M., when they gradually resumed their frequency and force. The funis had defied all attempts at reposition. I was then sent for by Dr. Starks, and arrived at about 7 o'clock, and found the feet, funis, and head presenting ; first position. *Funis pulseless.* The patient having been brought under chloroform, I delivered by the feet, bringing the face into the hollow of the sacrum. Child still-born. Cold, pressure, and 3vj of the saturated tincture of ergot contracted the uterus. Hemorrhage slight. Perineum somewhat lacerated. By the 22d she was able to go about the room, thanks to the very thorough care and prompt attention to every symptom of a threatening character rendered by Dr. Starks.

We cannot, however, be certain that the child will be born alive, though we succeed in promptly replacing and retaining the funis beyond the ordinary risks of pressure, as is well shown in the following history, in which perhaps the cause of death was from pressure on the cord by the breast, as in the case of Bridget Hanlon, No. 177:

CASE 183.—*Prolapse of funis; interesting autopsy of child; intra-uterine ascites and hydrothorax; apoplexy.*

Mary Matthews; aged 27; married; fell in labor for the fourth time on the 10th of November, 1861, at 2 P. M., in Bellevue Hospital. Previous labors natural. At 6 P. M. the membranes ruptured, and the cord prolapsed. The House Physician, Dr. Vedder, could not readily succeed in replacing the cord, and sent for me. I found the patient placed in the position recommended by Prof. T. G. Thomas, of this city, with a large loop of pulsating funis in the upper part of the vagina. The os uteri was fully dilatable, the arc of the parietal bones just dipping within the brim of the pelvis, and the foetal head quite movable. Pelvis well formed. My first care was to determine from which side the funis prolapsed, a point, in my opinion, of practical importance; since by endeavoring to return the loop on the opposite side it might thus be tightly drawn over the presenting part of the child, and danger follow, even though on that side there might be a greater amount of space between the presenting part and the pelvic brim. Finding that the cord had prolapsed on the left side of the pelvis, I proceeded with great gentleness to press it down the inclined plane, and succeeded in doing so to the level of the pelvic brim, when, as in other of my published cases, it was again driven up-hill into the vagina by a strong uterine contraction. Leaving the woman in the same position, I prepared myself to deliver promptly with the forceps if the manipulation should fail, and this notwithstanding the position of the foetal head. Reintrodu-

cing, as before, my entire hand within the vagina, I again gently recommenced the manœuvre, and this time pushing the head to the right side of the pelvis, carried my hand beyond the cranium, and only left the cord when on a level with the foetal chin. Before dropping it, as is always my custom, I satisfied myself by pressure between the fore and middle finger that the pulsations were good and strong. It did not again prolapse. On the 11th, at 4 A. M., the foetal heart pulsations were distinctly heard by Dr. Vedder—eight hours after the replacement. At 2 P. M. of the same day she was delivered by very powerful uterine contractions of a still-born male child, weighing nine and a half pounds, and well formed. Dr. Vedder states that there was a long interval between the birth of the head and that of the shoulders, as there often is in these labors where very powerful uterine contractions have been necessary to force the head through the straits, and as the shoulders came into the world Dr. Vedder remarked that the funis was doubled and placed in front of the breast. Length of cord normal. Placenta normal. Microscopic examination by Prof. A. Flint, Jr. Dr. Vedder inflated the lungs, but to no purpose. I saw the child two hours afterward, when its head was markedly livid, and on flexion fluid blood ran from the nose. On the following day an autopsy was made in presence of the class, by Dr. Teats, Assistant Curator of the Museum, and in order to diminish, as far as possible, all appearances of cerebral congestion, I requested him to open the other cavities first. When the peritoneum was opened, it appeared to be about half full of a sero-sanguinolent fluid, containing no lymph or pus. There was no false membrane anywhere within the abdomen, the organs of which appeared healthy, with the exception that the liver was somewhat darker than usual. Both pleuræ and the pericardium were from one-third to one-half full of a similar fluid, without token of other inflammatory action. The lungs crepitated, and the thoracic viscera were well formed and healthy. Dr. Vedder had inflated the

lungs. The child had never gasped. On removing the calvarium and dura mater, the scalp was found to present the customary congestion and jelly-like appearances in the caput succedaneum. No effusion between the cranium and dura mater. Vessels of convex surface of hemispheres remarkably congested, and a thin sheet of currant-jelly-like blood posteriorly over the convex surface of each hemisphere. The same extravasation had occurred at the base over the lower part of each posterior lobe; but there were no other clots, though the puncta vasculosa, choroid plexus, and all the cerebral tissues witnessed to the violence of the congestion.

Remarks.—This case affords a happy illustration of the success which will attend the patient use of the manœuvre proposed by Prof. T. G. Thomas, and although unsuccessful is not the less adapted to prove its advantages in a very difficult class of cases.

In considering whether, in such difficult cases, a porte-cordon might not prove of assistance in the necessarily deep depression of the cord, I incline to the belief that the advantages might be more than counterbalanced by the deprivation of the power to determine at the last moment whether or not the pulsations continued. If, however, a case should chance to occur in which the cord had to be carried thus deeply within the uterus, and the presentation interfered with proper manipulation, the porte-cordon might prove useful.

The cause of the effusion into the thorax and peritoneal cavity, and the period of its occurrence, are problems not easy of solution. It is not likely that the cord suffered any great compression during the time of its prolapse, nor during that required for its reposition, while such pressure as it might have been subjected to would of course have been materially expended on its vein, and have thus deprived the child of blood, and diminished the tendency to other congestion than such as would follow deficient oxygenation. The apoplectic effusion probably occurred during the passage of the head through the outlet, when Dr. Vedder remarked that

the expulsive pains were as strong as he should ever expect to see them, and all their force needed; or it might have occurred after the birth of the head, during the interval which elapsed before the birth of the shoulders, or from both of these causes combined.

If the effusion be admitted to have occurred during intra-uterine life from causes not entirely appreciated, then certainly the case affords a happy illustration of the value of post-mortem examinations of still-born children, as otherwise such a condition must have passed without suspicion—if, indeed, the death were not simply assigned to prolapse of the funis. The mother died from puerperal fever, which then existed in the hospital.

The rapidity with which death often follows prolapse of the funis is well shown in the following history:

CASE 184.—*Feet and funis presentation; still-born child.*

Mary —; single; aged 27; in labor in Bellevue from February 10, 1862, at 3 P. M., to February 11, at 3 A. M., under the care of Dr. Lowell, House Surgeon. Female child, weighing seven pounds, presented both feet, and when they were in the vagina, a large coil of funis prolapsed below the vulva. Dr. Lowell went instantly, but found no pulsation. Delivery easy. No respiratory effort made. I directed the autopsy fifteen hours after death, before the class. Weather cold. Peritoneal, pleural, and pericardial surfaces healthy. Lungs in foetal condition, free from disease. On carefully removing the skull-cap, without cutting the brain, $\frac{3}{4}$ of dark, bloody serum escaped. Brain firm, and came out intact. Serous effusion to an abnormal extent in both ventricles, especially the left.

Forceps or version.—If the funis should prolapse at a period of the labor when very prompt delivery by forceps is possible, they had better be applied at once. Such decisive treatment will probably afford the child a better chance for

life than any other. If the alternative be delivery by version, the prospect of an easy operation must be seriously considered; for if the funis be subjected for any time to the risks from pressure by the operator's arm, or by the contingencies of pelvic presentations, the chances of the child are most materially diminished, while the dangers to the mother are increased.

It is evident, therefore, that in delivery of the child by forceps or version in these elective cases two questions arise: first, the absolute facility with which either may be performed; second, the relative fitness of the practitioner in charge for the performance of either or both operations. It is thus evident that one man is warranted in operating in cases in which another had better abstain; and while thus the necessity for other methods of treatment than operative is diminished for the expert, it is obvious that very many cases must always occur in which operations are undesirable or impossible, and in which the practitioner only aims at reposition of the cord in utero, and its retention there.

Sometimes a man may so desire to avoid an elective operation that he may waste time unnecessarily, to the prejudice of his patient, as I did in the following case:

CASE 185.—*Prolapse of funis; Prof. Thomas's plan; forceps.*

Joanna Burke; aged 24; primipara; Bellevue. Drs. H. F. Andrews and R. B. Maury. *May 9th*, 1858, 10 P. M.—Os size of a dime, membranes to be felt during a pain. 4.45 A. M.—Membranes had ruptured; water gone; several loops of funis without the os uteri, and pulsating strongly. Dr. Andrews faithfully tried to reposit the cord by Prof. Thomas's plan, but without success; patient unruly. The woman was kept in Prof. Thomas's position for more than an hour; I was then sent for, and the patient placed on her back, and chloroformed to diminish the uterine contractions. Went instantly, and arrived a few minutes before six. Di-

rected Dr. Lambert to spring on the bed and hold the woman's hips in the exact position recommended, detailing another gentleman to watch the respiration, as she was fully under the influence of chloroform; and, by introducing my whole hand in the vagina, succeeded in repositing the scarcely pulsating funis within the uterus, to such an extent that the two fore-fingers, buried within the uterus, could barely touch it. But, when the next pain came on, it drove the funis up the reversed superior strait, so as to fill the vagina to the vulva. There was no time to lose, and having the woman rapidly placed on her back, I delivered her with all haste possible. The head had barely completed the movements of descent, and was yet in the superior strait, and my forceps were thrown over one oblique diameter, and the child delivered almost as rapidly as I can write this description. The pivot was not regarded much, and the child was marked over the lip with one blade, a result which could have readily been avoided if I had adjusted it accurately before making my tractions. But I had waited so long in the hope of success, in the manœuvre described, that I did not dare delay one instant. The child was asphyxiated, but was restored to life. It died on the fourth day, from inanition, with which I think that the sore lip had something to do. Mother did well.

In repositing the cord in utero it is obvious that there are difficulties which cannot be removed, but which may be materially diminished. These arise from the slippery character of the uterine walls and vagina of the mother, and of the funis itself. These conditions, with the length and small diameter of the cord, the influence of the uterine contractions, and the attraction of gravitation, combine to render the operation one of difficulty.

It is not sufficient that the cord be fully and entirely repositing within the uterus, for, as shown in some of my cases, the uterine contractions may force the funis out of the vulva,

even when the patient is so placed that the attraction of gravitation must be overcome and the cord pushed up-hill.

This is further illustrated in the following case :

CASE 186.—*Prolapse of funis in a breech presentation.*
—*Nursery and Child's Hospital—Dr. Barrett, House Physician, Reporter.*

Lizzie H.—; a native of Scotland; aged 23; second pregnancy; aborted in the first at three months. Last menstruation January 24th. Labor-pains commenced 10 P. M., October 29, 1866. 4 A. M.—Waters broke while straining at stool. She then walked from the basement floor where she had slept, to the third story, where the lying-in ward is situated. Upon examination, a few minutes after admission, a loop of the cord was found protruding from the vulva, and pulsating at the rate of 120 a minute. Os fully dilated, and the breech presenting (right sacro posterior) in the superior strait. Patient immediately placed in the position recommended by Prof. Thomas, and the cord easily reduced several times; but it was found impossible to retain it in place, each successive pain forcing it back again.

The pains were neither very frequent nor strong, and the pulsations of the cord were rapidly becoming diminished in number and strength.

The attending physician, Dr. Foster Swift, was then sent for, and he and Dr. Hull arrived at 7 o'clock. They found the cord still pulsating, but only at the rate of 40 per minute, and confirmed the facts previously ascertained as to presentation and position.

Dr. Swift then proceeded to deliver the child, by pulling down the feet and assisting the delivery of the head, which he accomplished in a short time, but too late to save its life. Measures resorted to for resuscitation were, dipping the child into warm and cold water, spanking it, Marshall Hall's method, and artificial inflation of the lungs, using for this

purpose the syringe connected with Barnes's dilating apparatus ; but all efforts proved ineffectual.

The pelvis was large. The attachment of the placenta was not ascertained. There appeared to be an unusually large amount of liquor amnii, for, notwithstanding the forcible and sudden rupture of the membranes, and the subsequent walk up-stairs, it still continued to gush forth in considerable quantity at every contraction. The cord also was long, measuring thirty-six inches in length. There was no appreciable obliquity of the uterus.

November 1st.—(Third day after confinement.) The woman is doing well.

Autopsy of child witnessed by Dr. Elliot, and the parts displayed at his clinic in the Bellevue Hospital.

CASE 187.—*Prolapse of funis.*

Dr. Warner sent for me on the 10th of November, 1864, to a woman in her second confinement, whom the doctor had first seen when in labor, with the funis prolapsed, and the head presenting. He placed the woman in Thomas's position, and gathering up the coil, replaced the funis in utero twice, passing it over the face of the child. On each occasion the next pain drove it *up-hill* and out of the uterus and vagina. When I arrived the patient was still in Thomas's position, and the cord external to the vulva, cold and pulseless. There being no evidence of the existence of twins, we decided not to make any further efforts.

Conclusions.—It follows, therefore, that the cord must be carried completely and well within the uterus ; the hand being introduced in the vagina if necessary, and the portecordon possibly of advantage ; and that the operator must watch over his case to observe whether the funis be retained, and the foetal heart continue to beat. It has been recommended by authors, who understood these facts, that the cord should be carried so far within the uterus as to hang it over

the knee or arm of the fœtus, or to coil it behind the head, before the hand were withdrawn. It is certain that reposition alone is unsatisfactory unless the cord be retained; and the retention must be due to the fact that it should fortunately slip or be carried into a place where it is less exposed to the uterine contractions, or so sheltered behind a presenting part that it cannot again be driven out.

Since we cannot change the size, shape, or slippery character of the cord and maternal passages, we cannot facilitate this procedure more certainly than by changing the direction of the long axis of the uterus so that the attraction of gravitation will operate toward the uterus instead of toward the sacrum; to reverse, in short, the direction of the superior strait, by placing the patient on her knees and breasts.

This position has been prominently brought forward by Prof. T. G. Thomas of this city, in a paper read before the New York Academy of Medicine, and widely published. His claims to priority have not been challenged in the American or English medical journals, although it appears that *Schmidt's Jahrbuch*, 1856, Band 91, S. 200, contains the outline of an article on the subject by Dr. Kiestra, published previously to Dr. T.'s, in which the method is recognized as Daventer's, and revived.

These facts illustrate the well-known difficulty of establishing the priority of an original observation, since in all departments of science the same ideas occur to independent and equally original observers. Before Dr. Thomas read his paper on "Postural Treatment of Prolapse of the Funis," he consulted me as to whether the old authors contained anything on the subject, and he and I have been equally ignorant that the observation had been previously made, until the facts were recently called to our attention.

It is to Prof. Thomas that American and English obstetric literature owes the method, and it is just and proper that it should rightfully be known in that literature by his name.

In appreciating the value of the method, the cases which are published in this volume suffice to show that it may be readily successful and demand but trifling effort; but they show that unless the cord be sheltered behind some part of the foetus capable of retaining it in utero, the funis may be again and again driven *up-hill* by the uterine contractions; they show that if the cord be retained, and the foetal heart continue to beat for hours, the child may be unfitted for extra-uterine life by effusions which probably depend on interference with the circulation during the prolapse or reposition; they show that if prompt operative delivery be possible, it had better be resorted to without delay rather than to risk the danger attending difficult or prolonged manipulation.

It is the best method which can be devised to assist our manipulations in the reposition of the funis; it will save the lives of children which would otherwise be lost, and should be familiar to all who practise midwifery, but it is only one of the means for this end, and cannot relieve the practitioner from the necessity for continued alertness and readiness with other measures, nor as greatly diminish the danger and difficulty of the complication as is to be hoped and desired.

CHAPTER XVI.

RETRO-PHARYNGEAL ABSCESS.

Case: Retro-pharyngeal abscess in an infant.—*Case:* Retro-pharyngeal abscess in a boy of seven months.—*Remarks.*—*Case:* Cellulitis (erysipelatous) in a new-born child.—Value of diet and hygiene in infancy.—Report on the pulse, weight, and respiration in infancy, with the influence of different kinds of alimentation on the state of health, by Dr. E. D. Hudson, Jr.

CASE 188.—*Retro-pharyngeal abscess in an infant.*—*Dr. Mead, House Surgeon.*

PATRICK LYNCH, aged four months, born in Bellevue, had remained in the hospital with his mother, as the latter had suffered from a broken breast, which had, however, healed perfectly. On the 7th of May, 1867, my attention was called to him by Dr. Mead, and I recognized the following symptoms: He was asleep at the time, and appeared well nourished, but quite pale. His breathing was rapid but not otherwise difficult during sleep. The head was forcibly thrown back, and retained in that position when he awoke, and the muscles of the posterior part of the neck were very rigid. On the right side of the neck, behind the angle of the jaw, there was marked tumefaction, with the feeling of deep fluctuation. A superficial abscess had been opened in this region on the 15th of April, and had completely healed. During the month of May the mother had noticed first, that the child did not breathe easily, and subsequently that its deglutition became unsatisfactory, and finally so difficult that the milk drawn from the breast would regurgitate from

the mouth. The child was evidently hungry and did its best to obtain milk, which it was unable to swallow. On depressing the tongue and carefully examining the throat, nothing abnormal whatever could be seen except some redness. The finger, however, could detect a bulging fluctuating tumor on the posterior wall of the pharynx. Having diagnosed a retro-pharyngeal abscess, I guarded a bistouri with plaster, and made an incision in the median line, when a gush of about an ounce of greenish fluid followed the finger as it was withdrawn. This relieved the little fellow's breathing, and within two hours he could nurse and swallow without difficulty; and the mother having only milk in one breast, other women in the ward aided in satisfying the child's hunger. The deep fluctuation on the side of the neck and the muscular rigidity disappeared, and all went well until May 11th, when some trouble in deglutition recurred. By the 12th the head was again thrown back in its old position, and by the 13th the patient swallowed as badly as before. On examining the throat with my finger I recognized the site of the old incision, and a fluctuating tumor in the same situation.

I then brought the child before the class, when some of the gentlemen recognized the fluctuation, and I made a second incision, the pus and blood escaping on this occasion through the pharynx as well as from the mouth. At this time the full escape of pus from the mouth did not happen at once, some more being expectorated after a few minutes. The same prompt relief to all the symptoms followed, and the child was discharged perfectly well.

CASE 189.—*Retro-pharyngeal abscess in a boy of seven months.*

This healthy, well-developed boy, aged seven months, the child of healthy parents, and nursed by its mother, had been under the care of Dr. Finlay for parotitis, from which other

members of the family were suffering. He was first taken on the 28th of January, 1867, and on the 3d of February there were dyspnœa and bronchial catarrh, with difficulty of breathing and in nursing. At Dr. Finlay's request I saw him in consultation on the 7th. He was drowsy, but fretful and uneasy, remained sitting on the lap, and objected to be laid down. His face was dark in color, the eyes suffused and dull. He seemed to breathe with some difficulty, irregularly and in a noisy manner. He swallowed with the greatest effort, and the greater portion if not all of the milk taken from the breast regurgitated at once from his mouth. The site of the parotitis was yet swollen. Nothing was seen on examining the throat. The touch, however, recognized a soft tumor below the level of the epiglottis, and behind the pharynx. At an early hour on the following morning, the family consenting, and the same conditions still recognizable, Dr. Finlay carried down a guarded bistouri on his finger, and opened the abscess. A gush of pus flooded the mouth, and escaped as the instrument was withdrawn. All the symptoms ceased at once, the child slept well and naturally, nursed well, and needed no further attention.

Remarks.—The infrequency of retro-pharyngeal abscess is such that men in very extensive practice rarely meet with it, and it is probable that children die from this disease without the diagnosis having been made. Indeed, I have recently been informed of a case in which the cause of death was only appreciated at the autopsy. Dr. West has only seen two cases in his extensive field of observation.

Abscesses in the sides of the neck, behind the angles of the jaws, may break into the pharynx as well as discharge themselves, or be opened externally, without giving rise to the symptoms met with in my two cases. I have seen such instances where the probe could be subsequently passed from without and be seen in the mouth. The abscesses may be retro and latero-pharyngeal. In searching for the causa-

tion of these abscesses we must take cognizance of the constitution of the patient and of the state of health just before the development of the symptoms. A scrofulous constitution, with glandular swellings of the neck, may give rise to abscess, and, on the other hand, the early stages of extensive retro and latero-pharyngeal abscesses may be overlooked, in the belief that there is only some glandular swelling of the neck. The exanthemata, and especially scarlatina and parotitis, as in Case 189, are capable of giving rise to such conditions of the tonsils and pharynx as predispose the patient to this disease. Caries of the bodies of the vertebræ may cause abscess here as in the neighborhood of other diseased bones, but it may well be expected in these cases that the more gradual invasion of the symptoms, and their more pronounced character, may lead to the assignment of the abscess to its special origin before it shall have attained such dimensions as may threaten life.

In idiopathic cases it is not always possible to appreciate the exciting causes. The bland nourishment, of equal temperature, obtained from the breast, excludes the probability of suspecting irritation from any aliment or foreign body in the throat. Still, it is wise to examine carefully into the diet, and learn the character of those who have had charge of the child.

I was once called to one of my little patients, who cried whenever he attempted to swallow, and had done so since his breakfast, although he had not suffered previously. He had taken nothing for his breakfast but bread-and-milk. On examining the throat, I saw nothing abnormal, and supposed that the trouble must be very trifling. Still, as he complained greatly, I made a more thorough examination, when I recognized far down in the pharynx a splinter of wood fast in the mucous membrane, which I withdrew with forceps, and the trouble ceased. How a splinter of wood was swallowed with his bread-and-milk was not apparent, and could not have been foretold.

Some hysterical nurses, or those with evil intent, may cause their little charges to swallow pins and other articles capable of producing harm. These may be seen in some cases coming from the anus, and stained by their passage through the intestines.

It follows, therefore, that, in the examination of the throats of little children, where the unaided eyesight fails to appreciate the cause of irritation, the finger and the laryngoscope should be used to complete the diagnosis.

When a retro-pharyngeal abscess is recognized, it should be opened promptly, for the relief is as immediate as it is desirable. There is but a trifling risk in the incision, and but a slight risk of mistake in the diagnosis. I have read the details of a case where a new-born child was unable to swallow on account of the pressure on the œsophagus from a cyst which had developed during intra-uterine life. Could that have been recognized, it would evidently have been better if an incision had been made.

We have no right to anticipate the risk of wounding any vessel in the site of the incision in the median line, and we cannot be responsible for such anomalies as existed in a case reported by Beatty in his "Contributions to Medicine and Midwifery," page 522, in which a "fish-bone stuck in the throat of a patient, who applied to an experienced surgeon for relief. This gentleman attempted to push the bone down the throat with a probang, when suddenly there came a great gush of blood, and the patient fell dead. It was found that the arteria inominata had dipped down between the trachea and the œsophagus, just at the spot where the fish-bone had lodged, the point of which had been forced by the probang into the artery, and thus caused the death."

In the two cases of retro-pharyngeal abscess which I have described, the character of the breathing varied. In the hospital case, the head was thrown back in an exaggerated manner, as it might be in cases of true croup, but the child did not seem desirous of being raised to the erect posture. In

the other one, this was imperatively sought, and such snatches of sleep as were taken were taken in the sitting position. In this latter case, the commencing duskiness of the face, the suffusion of the eyes, the labored and loud inspiration, with the intervals of stupor, rather than sleep, would lead the physician to look first for some obstruction in the windpipe, from false membrane, bronchitis, spasm, or thickening of the glottis or aryteno-epiglottidean folds. And next the suspicion of lesion of the nervous centres would be awakened. In some of these cases this latter suspicion might be strengthened by facial paralysis, which has sometimes occurred. If unrelieved, the circulation of the brain may be so disturbed and the return of blood therefrom so impeded by the swelling, as to lead to death from cerebral congestion, and to develop convulsions.

The differential diagnosis is to be based on the absence of thoracic auscultatory signs of disease, on the absence of false membrane in the throat, on the gradual development of symptoms in which difficulty of deglutition with the desire for food take prominent rank, in the occurrence of inflammatory swelling by the angle of the jaw, but above all is it to be based on thorough examination of the pharynx with the finger.

This examination is paramountly necessary in those cases of vertebral or exanthematous disease, where difficult deglutition with stiffness in the movement of the head and neck attract attention. If the abscess commence in the submucous tissues of the pharynx, it may not be possible to arrest its march. Cold or hot gargles and poultices, possibly leeches in the adult or the robust and well-grown child who has passed the period of infancy, scarifications of the pharynx and counter-irritation, with warm or iced applications to the sides of the throat, are the remedies which suggest themselves for trial. If the trouble originates in the mucous membrane, there may be a greater hope for timely treatment, and in the application of the scarificator, of astringents, the nitrate of silver, and the chlorates of potash and soda.

In neither of these cases recorded, were injections of the abscess subsequently used. These, however, are recommended on high authority.*

Somebody has said that we have made great advances in medicine, but that we cannot tell why a pimple should come in a particular part of the body, a truth of a humiliating character. Nor can we always say why large abscesses should occur now here, now there, in the body, but our most important duty is to recognize them early and treat them appropriately.

In the following interesting case, occurring during my service in April, 1867, it may be questioned how far the fall from the bed influenced the subsequent phenomena; though I have no doubt, myself, that the affection was of an erysipelatous character, even though connected with the injury.

The atmosphere of a general hospital must, of necessity, increase the liability to such diseases, and I have more than once witnessed the development of erysipelatous affections of the neonatus, occurring both when puerperal fever was rife, and when—as in the month of April—there existed no marked tendency to the disease.

CASE 190.—*Cellulitis (erysipelatous) in a new-born child; incisions; recovery.*

Mary Wall; aged 26; United States; married; second pregnancy. Labor commenced in Bellevue, March 25th, at 11.30 A. M. L. O. A. First stage, eighteen and one-half hours; second, half an hour; third, five minutes. Labor natural in every respect. Male child; weight, eight and a half pounds. Two days after delivery the child fell out of the mother's bed, but she did not call attention to the baby until the following day, when no evidences of any injury

* Vide an excellent article by Dr. Charles M. Allin, with a statistical table of fifty-eight cases, in the *New York Journal of Medicine*, November, 1851.

could be detected. But on the third day after the accident Dr. Nicoll recognized great redness and tenseness of the tissues over the clavicle and shoulder, extending about two inches in every direction. The child suffered very little constitutionally, but manifested a great deal of pain when the parts were touched. No fracture or dislocation, or injury to joint. Bowels regular. Nursed well. On the following day the erysipelatous redness had extended over the thorax in front and behind, and was extending upward over the occipital bone. The tissues were of a dusky hue, very tense, and œdematous. No fluctuation. More constitutional disturbance. Does not nurse as well. Lead and opium wash has been used; changed to day by Dr. Elliot to an ointment with the same ingredients. Mother and child transferred to a medical ward. Dr. Henry F. Walker, House Physician. *April 4th.*—Shown to the class. Fluctuation evident. Free incision anteriorly at middle of clavicle; posteriorly at middle of spine of scapula. Laudable pus flowed freely. Dressed with poultices sprinkled with lead lotion. Little constitutional disturbance. Nurses well. No disturbance of digestion. *April 7th.*—Erythematous redness of buttocks, which yielded promptly to lead-water. Erysipelatous redness of shoulder removed. Discharge less abundant. Lint and cerate. *17th.*—Almost entirely healed. Transferred to convalescent ward. *April 28th.*—Another outbreak of erysipelatous redness in original site, followed by a little pus. After this there were several slight incisions necessary for relief of pus, and the parts were left hard and drawn from the adhesion of the cellular tissue. The mother watched the child devotedly, and they left the hospital in June, a small discharge of pus continuing.

Value of diet and hygiene in infancy.—In this case the success of the treatment in spite of the relapses was paramountly due to the devotion with which the mother watched the child, and her ability to furnish it with an ample supply of good breast-milk.

I am no friend to the bottle for babies, regarding nothing as better proven than that the probabilities of healthy development in infancy are in direct ratio to the amount, quality, and duration of the supply of breast-milk.

For any baby called upon to endure the prostration and sufferings inseparable from the formation and discharge of a large abscess, the questions of diet and hygiene are paramountly important. Such a one, if brought up on the bottle, had better, as a rule, be promptly put to the breast, and if possible such changes made as its sanitary surroundings may demand. We have no time to lose with babies. Their necessity for nutrition is too active and imperative to admit of delay. If the balance be lost for a while, there is too great danger that it may not be regained, and the little one recover from its ailment only to fall a victim to infantile atrophy, and those diseases which develop like fungi when development is arrested. The character of the alvine evacuations must be scrutinized, and the tone of the digestion brought to its highest standard. Alkalies for acidity, preparations of pepsine for atonic digestion, with some preparation of iron when the acute febrile symptoms have subsided, with possibly bark and cod-liver oil internally, are remedies which have always to receive consideration. In many cases of debility and failing nutrition in infancy, I have found beneficial results to follow the wearing over the abdomen of a flannel bandage saturated with cod-liver oil. It is nasty, but if we can make the skin aid the weak digestion we should do so. If the child have reached seven months, it may handle strip after strip of rare roasted or broiled beef, and daub its face all over while sucking the vitalizing juices, on the assimilation of which so much may depend. The yolk of a soft-boiled egg, beef-tea, chicken and mutton broth, in such strength and quantity as may prove to be digestible in the individual case, should be tried. But above all, when the abscess is opened, and it is apparent that there remains only the gradual closure of its walls, and such repair of tissue as

depends directly on nature rather than art, then let the little patient be carried, if possible, away from the city to the sea-side or the mountain in summer, to the South in winter, to that place, in short, where the most invigorating influences from life in the pure and open air can be enjoyed to their uttermost.

What a blessing it is for anxious parents to be able to command these influences for their children! They are the privilege of wealth or competence, and an incentive to labor.

Babies should be frequently weighed.—The influence of a proper supply of breast-milk on the development and weight of children at the breast is shown in the following table, which was prepared at my request during my last term of service, and according to my schedule, by Dr. E. D. Hudson, Jr., from the children in the wards, and the table offers an additional contribution to the imperfect data on which the semeiology of infancy is based.

There is no test so accurate and so subtle as the balance for appreciating the standard and condition of babies. It is better that every child should be accurately weighed at birth, and that it should be weighed from time to time during the first year of life, even though it seem to be improving satisfactorily. But in all cases of faulty nutrition it is indispensable for deciding positively whether assimilation be satisfactory or not.

When we consider that the little baby must grow from the weight of six or eight pounds at birth to that of nineteen to twenty-five in the first year, we have clearly before us the emphatic evidence that it cannot afford to lose time and opportunity, and that all guess-work, and handling, and opinions, should give way before the impartial judgment of the balance.

Why it is, I do not know, but some of my patients, and many of the Jewish faith, are unwilling that their children should be weighed.

REPORT ON THE WEIGHT, PULSE, AND RESPIRATION OF INFANTS, AND OF THE

MODIFYING INFLUENCE OF ALIMENTATION AND STATE OF HEALTH,

By E. D. HUDSON, JR., M. D.,

Junior Assistant Surgeon, Bellevue Hospital, April, 1867.

NAME.	Age.	Sex.	Alimenta- tion.	Health.	Weight at birth.	Weight now.	Time of day.	Awake or sleeping.	Pulse.	Respn.
Martin Burns.....	4 w. 4 d.	M.	Breast.	D'rhea.	6 8	6 7	1 P. M.	Sleep'g.	136	40
Michael Kelly.....	2 m.	M.	B't&B'e	Cough.	7 —	9 1	1 P. M.	Nurs'g.	124	52
Ellen McNamara....	1 m. 4 d.	F.	B't&B'e	Bad D'a	7 —	6 8	3.30P.M.	Awake.	140	56
Paul Friese.....	3 w. 4 d.	M.	Breast.	Good.	7 —	9 —	4 P. M.	Awake.	132	40
Helena Paul.....	2 m.	F.	B't&B'e	Good.	7 12	8 4	3.30P.M.	Sleep'g.	116	40
James Larkins.....	4 w.	M.	Breast.	Good.	7 —	8 —	1 P. M.	Sleep'g.	120	40
Mary J. Foster.....	2 w. 2 d.	F.	Breast.	Good.	7 —	8 4	3 P. M.	Awake.	138	56
Joseph Degan.....	5 w.	M.	Breast.	Good.	8 —	11 8	4 P. M.	Awake.	125	40
Thomas Eagan.....	1 m. 9 d.	M.	Breast.	Good.	7 12	12 8	2.30P.M.	Awake.	120	40
Annie Mellen.....	4 w.	F.	Breast.*	Good.	6 12	7 12	3 P. M.	Sleep'g.	128	52
Minnie Sherman.....	3 w.	F.	Breast.	Good.	7 4	8 4	3 P. M.	Awake.	133	40
Joseph Simmons.....	2 w. 2 d.	M.	Breast.	Good.	6 8	8 —	11 A. M.	Sleep'g.	124	38
Margaret Seeley.....	6 w.	F.	Breast.	D'rhea.	6 8	8 11	2.30P.M.	Nurs'g.	140	36
Katy McFadden.....	3 w.	F.	Breast.	Good.	8 12	8 4	11 A. M.	Sleep'g.	136	40
Willie Schmidt.....	6 w.	M.	B't&B'e	Sickly.	7 8	7 —	3 P. M.	Nurs'g.	95	36
John Russells.....	1 w.	M.	Breast.	Good.	— —	— —	4.30P.M.	Sleep'g.	160	54
Mary Brannan.....	11 d.	F.	Breast.	Good.	— —	9 —	3 P. M.	Sleep'g.	133	56
Owen Davis.....	2 w.	M.	Breast.	Good.	6 8	7 4	2 P. M.	Awake.	120	56
Ellen Macaulay.....	1 m.	F.	Breast.	Good.	8 8	7 8	12 M.	Awake.	133	56
Patrick Henry.....	4 m.	M.	B't&B'e	Good.	— —	13 8	12.15	Sleep'g.	124	32
James Cronin.....	1 m. 12 d.	M.	B't&B'e	Feeble.	8 —	7 1	10.45	Nurs'g.	132	40
Harriet Eagan.....	1 m. 3 d.	F.	Breast.	Good.	— —	9 1	11.15	Sleep'g.	120	38
John J. Foster.....	1 m.	M.	Breast.	G'l Erysipelas.	9 12	8 4	11.30	Awake.	130	50
Mary J. Hampton....	1 m.	F.	Breast.	Good.	9 —	8 15	11.30	Awake.	124	44
Carrie Cornell.....	2 w.	F.	Breast.	Good.	7 4	7 13	12	Sleep'g.	128	40
Annie Moore.....	2 w.	F.	Breast.	Good.	7 8	7 12	11.30	Sleep'g.	123	46
Mary Ann Dowlan....	2 w.	F.	Breast.	Good.	— —	8 8	11.30	Sleep'g.	124	40
Francis Goodman....	3 w.	M.	Breast.	Good.	8 8	7 9	11.45	Sleep'g.	118	36
Geo. F. Nelson.....	3 w.	M.	Breast.	Good.	7 8	8 3	11.45	Sleep'g.	120	36
Albert Jones.....	2 m.	M.	Breast.	Good.	11 8	15 —	10.30	Awake.	120	40
Sarah McKee.....	1 m.	F.	Breast.	Good.	— —	7 4	10.45	Awake.	120	52
Mary E. McDonald..	2 m. Twin.	F.	Bottle.	Feeble.	6 12	6 9	10.45	Awake.	154	68
John W. McDonald..	2 m. Twin.	M.	Bottle.	Good.	8 4	8 1	11	Nurs'g.	140	56
Francis Murray.....	1 w.	M.	Breast.	Good.	5 2	5 8	10.15	Awake.	132	58
Joseph Beare.....	9 d.	M.	Breast.	Good.	8 8	8 12	11	Awake.	138	44
Mary Nolan.....	10 d.	F.	Breast.	Good.	5 8	5 12	11.15	Sleep'g.	140	40
Mary Mervin.....	17 d.	F.	Breast.	Good.	7 —	7 12	11.30	Sleep'g.	120	46
Thomas Johnston....	9 d.	M.	Breast.	Good.	6 8	7 —	11.30	Sleep'g.	124	40
John Conway.....	14 d.	M.	Breast.†	Good.	7 4	8 —	11.30	Nurs'g.	128	48
John Hughes.....	8 d.	M.	Breast.	Good.	7 —	8 8	10.30	Sleep'g.	120	38
Francis Garvis.....	5 d.	M.	Breast.	Good.	4 8	4 10	10.49	Sleep'g.	136	46
Edward Howe.....	4 d.	M.	Breast.‡	Good.	8 4	8 4	10.45	Sleep'g.	112	52
Mary Hughes.....	3 d.	F.	Breast.	Good.	9 12	9 12	10.15	Sleep'g.	124	53
John McGay.....	3 d.	M.	Breast.	Good.	7 4	7 4	10	Sleep'g.	112	39
John Kelly.....	4 d.	M.	Breast.	Good.	8 8	8 8	10	Nurs'g.	108	85
Patrick Welch.....	1 w.	M.	Breast.	Good.	8 —	8 7	11.45	Sleep'g.	116	44

* 8 months' child.

† Mother dead.

‡ 7 months' child.

CONCLUSIONS AND ESTIMATES DRAWN FROM THE GENERAL TABLE (*preceding page*).

I.

Whole number of Infants in the Wards.....	46
“ “ “ Males.....	27
“ “ “ Females.....	19
	—
	46

II.

Number of Infants, age 1 week or less.....	9
“ “ “ “ 1 week to 2 weeks.....	11
“ “ “ “ 2 weeks to 4 weeks.....	14
“ “ “ “ 1 month to 4 months.....	12
	—
	46

III.

Average of Weight at Birth.....	7 lb 6 $\frac{3}{8}$
Greatest Weight at Full Term.....	11 “ — “
Smallest Weight at Full Term.....	5 “ 2 “
Weight of a Child born at seventh month.....	4 “ 8 “

IV.

Average of Weight, Pulse, and Respiration at different Ages.

	Pulse.	Respiration.	Weight.
1 week.....	125	48 $\frac{5}{8}$	7 $\frac{1}{8}$
2 weeks.....	127 $\frac{4}{5}$	44 $\frac{4}{5}$	7 $\frac{7}{10}$
2 weeks to 1 month.....	126 $\frac{4}{10}$	45	7 $\frac{9}{10}$
1 month to 4 months.....	127 $\frac{1}{6}$	43 $\frac{1}{10}$	10 $\frac{1}{10}$

V.

Average of Pulse and Respiration Awake and Sleeping.

	Pulse.	Respiration.
Awake.....	131 $\frac{1}{4}$	49 $\frac{1}{4}$
Sleeping.....	125 $\frac{1}{8}$	43 $\frac{1}{8}$

VI.

Average Development per Month.

Average Gain per Month on Breast.....	15 $\frac{7}{10}$	$\frac{2}{3}$
“ “ “ “ “ Bottle.....	1 $\frac{7}{10}$	“
Of the 38 on the Breast—		
32 have gained a monthly average of.....	1 lb	9 $\frac{1}{2}$ $\frac{2}{3}$
6 “ lost “ “	12 $\frac{1}{2}$	“
Of the 8 on the Bottle—		
3 have gained.....	13 $\frac{1}{10}$	$\frac{2}{3}$
5 “ lost.....	5 $\frac{3}{10}$	“

VII.

Greatest Individual Gain per Month.

On the Breast.....	4 lb
“ Bottle.....	1 “ 6 $\frac{1}{2}$ $\frac{2}{3}$

VIII.

Highest and Lowest Observed Pulse and Respiration in Health.

(All taken during sleep.)

	Pulse.	Respiration.
Maximum.....	160	58
Minimum.....	112	34

CHAPTER XVII.

KYESTEINE.

THE following article was published in the *New York Journal of Medicine*, about nine years ago, and represents my views at the present time. My friend, the late Dr. Henry Van Arsdale, made all the examinations with me, and the results represent our united study of the subject :

The admitted difficulty of diagnosing many cases of pregnancy has led to the examination of the urine in the hope that some one of its conditions might prove a reliable test.

These researches date back to the fathers of medicine; and Avicenna is reported to have noticed a cotton cloud-like deposit in the recent urine of pregnant women; and by his descriptions of "ascending granules," has been understood to refer to the formation of a pellicle.

The belief, though vague, became general, and allusions thereto can be found floating down the stream of popular literature. Thus in Boccaccio's "*Decameron*," a poor simpleton hoaxed into the belief of his illness, is persuaded by his jesting friends to send some of his urine to a physician in the plot, who decides from its examination that the man is pregnant!

But beyond this, I am not aware that the subject was made a particular study before the year 1831, when Nauche, of Paris, submitted to the profession his views of a peculiar gelatino-albuminous ingredient, or product, found only in

the urine of pregnancy, and separated by rest alone, which has received the name of Kyesteine, or Kyjestine, derived from *κύησις* έως.

He is thus entitled to the credit of calling attention to a subject which needed elucidation, and which was entirely obscure. The number of observers since that time has been small, but important statements have been made, and now that our knowledge of the kidneys and their secretions is so advanced, the question will probably be settled ere long.

Nauche remarked that when the urine passed by a pregnant woman was placed in a glass vessel and allowed to stand, a cotton-like cloudy deposit first appeared; when later on, specks, or oblong points, gradually increasing in number, became agglomerated on the surface of the liquid, and appeared on the sides of the vessel. Thus the surface soon became covered with a firm tenacious pellicle, which he considered to be peculiar to pregnancy, and an evidence of that state; and believed to be distinguishable from pellicles formed on the surface of urine in other conditions of health and disease.

Eguisier followed with a paper based on the examination of twenty-five cases, and concluded that it was an invariable accompaniment of pregnancy, and distinguishable from other pellicles formed on the surface of urine. He explained the presence of this peculiar ingredient as resulting from the absorption of the amniotic liquid, and remarked that when it had disappeared, the urine from the same woman gave this appearance no longer.

Golding Bird felt that the subject promised fairly enough to demand his attention, and he published, in 1840, views on the subject, which, in 1851, he saw no cause to modify. He procured, in all, the urine of thirty pregnant women, which he examined in the manner recommended by his predecessors. The women were from the third to the last month of pregnancy, and in twenty-seven cases "copious fat-like pellicles were obtained after a few days' exposure." The three

women who did not furnish the pellicle were suffering from inflammatory fever, and in one it appeared when the fever had left. By examining the urine of one patient he pronounced her pregnant in spite of her positive denial, and his opinion proved to be correct. Under the microscope, Bird found the pellicles to display numberless crystals of the triple phosphate, with beds of granular matter and tolerably regular globular bodies. He believes the fatty appearance of the pellicle to be due to the presence of these crystals, though he recognizes some fatty matter. He does not allude to the presence of vibriones.

Dr. Bird lays great stress on the evolution of a strong cheesy odor from the pellicle, or from the entire urine after its formation, and concludes, that if the urine of a pregnant woman affords a pellicle, after a few days' exposure, resembling the fatty scum of cooled mutton-broth, accompanied by a cheese-like odor, its presence will afford a strong corroborative test of pregnancy, but not an entirely reliable one; because, as he says, "we have, as yet, no right to assume, however probable it may be, that a caseous pellicle can appear only when pregnancy exists."

Dr. Elisha Kane has published an admirable paper on this subject, which will always be identified with the history of kysteine.

He examined the urine of eighty-five pregnant women, and ninety-four during lactation, a total of one hundred and seventy-nine cases, presented in a tabular form.

He considers that, although not unerring, it is among the most certain tests in the early period of pregnancy, and states, with confidence, his ability to give a pretty accurate opinion on the occurrence of pregnancy by the sole examination of the urine. From the specimens of the urine of pregnancy, sixty-eight presented a well-marked pellicle; and from those of lactation, thirty-two gave the characteristics of kysteine.

Dr. Kane, nevertheless, holds pretty closely to the views

of Golding Bird, that this product is probably the result of the secretion of the mammary glands, conveyed from the system by the kidneys; and states that the occurrence of the pellicle, when the lacteal secretion is uninterrupted by fever, weaning, abscess, or other causes, is rare. Out of forty-eight such cases, but five presented the pellicle. He did not find the cheesy odor in the proportions stated by Bird; and believes some of the granular matters found under the microscope to be identical with colostrum, a view which has not received support. He examined the urine of sixteen unimpregnated females, without being led into error. He admits the formation of a pellicle in phthisis, vesical catarrh, uterine tumors, and metastatic abscesses, which might deceive the unpractised, but would not deceive him. His paper is well arranged, and bears marks of talent, industry, and enthusiasm.

Dr. Letheby examined the urine of fifty pregnant women, obtaining kyesteine in forty-eight, and did not find it in the urine of seventeen non-pregnant. He found it in ten suckling women, decreasing as lactation advanced. He believes that the pellicle is not to be confounded with others, and compares the odor to putrifying beef.

Becquerel examined the urine of three pregnant women, and nineteen recently delivered, and found nothing peculiar to pregnancy, and attributed the changes noticed by others to modifications undergone by the mucus.

But filtration has not been found to alter the appearances of the urine, which are, moreover, similar in the cases where it has been drawn off with the catheter. Still, according to the statistics of Dr. Kane, Becquerel should have found some of the characteristics of kyesteine in about seven of his cases. Dr. Stark, of Edinburgh, examined more than sixty specimens of the urine of pregnancy, and propounded, as the result of his labors, that there exists a proximate principle, or substance, *sui generis*, forming a connecting link between the gelatinous and albuminous principles, which he proposes to designate by the term "gravadine." He considers that

this substance is presented under the microscope, in the form of globules, of a whitish hue; perfectly circular and transparent, and reflecting an opalescent hue when light was thrown on their sides, or transmitted. He considers that the coloring matter resides in their external envelopes; and that the pellicle so often alluded to results from the decomposition of these globules. They were present in all of his specimens; and he states that, by due attention to them and to the formation of the pellicle, you can give an opinion by the tenth week of pregnancy, provided that you can then hear the placental souffle, notice enlargement of the abdomen, and mark the changes in the areola.

He denies the importance of the cheesy odor in the urine, so strongly insisted upon by Bird.

One would suppose that, if the discovery of Dr. Stark were of value, it would be more reliable as a test.

Dr. Golding, in his elaborate essay on the "Signs of Pregnancy," concludes that the kysteine pellicle is the only certain test before the fifth month; that it is uninfluenced by age, temperament, or number of pregnancy—that it is never absent during all the period of pregnancy, though the same woman may sometimes furnish it, and sometimes not; and that it disappears during lactation.

Vanoni examined the urine of one hundred and forty women, and found the peculiar pellicle unfailing, save in the urine of one woman five months pregnant. When led to doubt the value of other signs, he would be guided by this test.

Dr. Veit instituted a series of experiments at the Lying-in Hospital of Halle—observing the changes in the urine of forty-eight pregnant women, four non-pregnant, and ten men.

He arrived at the conclusion that kysteine was not a product of pregnancy, nor peculiar to that state, and attaches no value to it as a test.

He speaks of the myriads of vibriones which, with the triple phosphates, he considers to constitute the pellicle; and

alludes to the greater degree of alkalinity in the urine of pregnancy.

Zimmermann considers kysteine to result from the formation of these vibriones in the lower strata of the liquid, which, rising to the top, unite with triple phosphates, amorphous phosphates of lime, and urates of ammonia, to form the pellicle, thus ignoring the existence of any ingredient peculiar or confined to the pregnant state.

Regnault considers the nitrogenized matters found in all urine to be vastly in excess in the urine of pregnancy, denying that it contains any new principle. He attributes the pellicle to the vibriones and triple phosphates. The change is effected principally by the action of oxygen.

Indeed, experiments are not wanting to show the effect of atmospheric air on the development of these vibriones, notwithstanding the fact of their having been voided in some cases of extreme vitiation of the constitution.

Simon found the pellicle to consist of amorphous matter with opaque specks, vibriones in movement, and triple phosphates; while monads appeared at a later date.

Such being a fair *résumé* of the literature of the subject, it is evident that the question is far from settled, and without any other desire than to form opinions for our guidance, we determined to examine the appearances for ourselves,—and believing that many of those who had preceded us had relied on too small a number of cases, we desired to test a great number of specimens, and made tabular records of over *one hundred and fifty-three*, having examined over *one hundred and sixty*. In order that we should be less exposed to the chances of deception or error, we obtained most of the urine from women who applied at my office in the New York Lying-in Asylum, of which I was then Resident Physician, for a ticket, which would enable them to be attended in their labor by the district physician of the Asylum—though we did not adopt this plan until we had satisfied ourselves that the appearances did not seem to be affected by the

time of day when the urine was passed; in other words, that the "*urina sanguinis*" was not necessary to the experiment.

The urine thus obtained was exposed to the proper temperature in shallow, wide-mouthed glass vessels, holding an ounce or more, and covered with a label referring to the number of the case in the record. A portion of each specimen was tested with heat and nitric acid—with litmus-paper—often with acetic acid, as well as boiled with liquor potassæ, contained in bottles free from lead.

The daily changes were regularly noted until they could be almost foretold by us in many cases, and the microscope was brought to bear on every specimen many times.

We thought, and still think, that these observations should have been made more extensively on the urine of the earliest months of pregnancy, and on the urine of lower animals; but the drudgery of the task and the result of our researches have not stimulated us to continue further.

It seemed to us desirable to notice whether the microscope could reveal any "globular" or other bodies peculiar to pregnancy, and to this part of the examination Dr. Van Arsdale gave the most faithful and unwearied attention.

Now, while the urine collected and thus exposed furnished us with pellicles after various intervals of time, yet did these pellicles differ greatly from each other in appearance and modes of formation. While one-sixteenth of the whole number failed to present a pellicle, still their characteristics are readily referable to certain types.

To begin with the changes which were the most satisfactory as coinciding with those on which the value of kyesteine as a test of pregnancy reposes:

First day.—Cloud-like deposit, like very thin blue-milk dropped in the urine; or, like some fuzzy cotton carefully scraped.

Second day.—Shining specks in the urine, and commencing film on the surface.

Third day.—Film forming well, cheesy odor.

Fourth day.—Film very distinct, tenacious, about a line in thickness, concave on its upper surface, "glistening like spermaceti," lighter in color than the rest of the urine, which has, however, assumed an opaline hue. The white specks which preceded the formation of the pellicle are very distinct, and adherent to the sides of the glass. Brilliant crystalline specks on the surface. Cheesy odor very distinct.

Seventh day.—This state of things has continued, and the pellicle is now beginning to break up. It commences to crack and separate, showing a darker color through its interstices.

The microscope displays now, as it has done some days since, vibriones and monads, disporting themselves in a dark amorphous mass studded with opaque points, and having imbedded within it very numerous and well-formed crystals of the triple phosphate, but no globular bodies whatsoever, either in the sediment, pellicle, or intermediate strata.

Now, could such appearances be found in the urine of pregnancy, and the urine of pregnancy alone, the need of the profession would be supplied; but the proportion of such classical specimens was small, and the cheesy odor rarely present, even in specimens equally well marked.

We have seen a pellicle, resembling the foregoing description in every single particular (saving the cheesy odor), form on the urine of a healthy woman, suckling a child four months old, and which required all the milk that the well-supplied breasts of its mother could furnish.

A female servant in the asylum had been troubled with dysmenorrhœa. She would be faint, hysterical, very troublesome to deal with, and alarming [herself, and all the women around her, when her turns came on. I examined the uterus at one menstrual period, drew off her urine with the catheter, and exposed it as usual.

Hers passed through the changes described, and presented

a well-marked, thick, tenacious, fatty scum on the surface, studded with cream-colored spots, differing in no respect from numbers of our best-marked specimens. The microscope displayed the appearances described above. I know that this woman had not been pregnant for two years, and she remained under my close observation for many months subsequently, and therefore these appearances occurred in the urine of pregnancy, in the urine of uninterrupted lactation, and in the urine of an unimpregnated female at a period of time amply remote from a previous pregnancy.

Neither of these last two specimens gave the cheesy odor, but we soon learned that it was too infrequent to serve as a test of the urine of pregnancy.

In three specimens from pregnant women presenting the same appearances, and undergoing similar changes, we might find the cheesy odor in one, the odor of putrescent beef in a second, and an unspeakable odor in the third.

A very common variety of pellicle, and one that we acquired the habit of foretelling with great certainty, is apt to form on the urine of anæmic, anxious-looking women. It is generally of a pale color, and contains a larger admixture of vaginal mucus. The changes occurring in this kind of urine are very much as follows: the specimen becomes rapidly opaline in color, without the preceding whitish specks, twenty-four hours being, for the most part, more than sufficient for the transformation; and by that period of time the surface has assumed a glazed appearance from the presence of a film, which, as it does not differ in color from the urine, might escape observation, unless a probe or sharp-pointed instrument were passed through it; when an even, regular, and slightly tenacious film would be detected. This would remain for variable periods, sometimes for more than a week, becoming thicker and better formed, and giving the best examples of the pellicle resembling the fatty scum of cooled mutton-broth.

Now, in this kind of urine we were able to foretell the ap-

pearance of vibriones and monads at an earlier period of time than in any other, they being visible before the crystals of the triple phosphate.

In some of these specimens, while the change in color just referred to and the microscopical appearances were the same, the pellicle would resemble a thin layer of collodion, adhering tightly to the centre, and sinking with the evaporation of the liquid.

We have not observed the monads to appear at a later period than the vibriones, as a general rule.

Again, some specimens of urine would give the cotton-like, cloudy deposit for the first day, and by the expiration of that time, the surface would be studded with brilliant crystals of the triple phosphate, as though diamond-dust had been sprinkled there.

This urine was generally alkaline from the beginning, and when we had recognized this appearance, we no longer anticipated the opaline change in color, nor any of the pellicles that have been described.

These points would increase in number, become agglomerated, and form a pellicle, indeed—but one dry, irregular, and pointed, which broke up, and fell to the bottom as the others did.

Another pellicle frequently met with, was one forming rapidly, dry and dark-looking, and rugous as though it had been blown with the breath and suddenly crisped. Under the microscope, vibriones and monads would first appear.

A gentleman visiting my office one day, passed some water at my instance, which was exposed under the same conditions as the others. To our amusement, a pellicle, precisely resembling the last described, formed and lasted some time.

This variety, however, while presenting the cotton-like deposit, does not present the opaque spots and bright oblong points seen in others.

Other specimens obtained from pregnant women would

present a dense, turbid deposit. The urine would deepen in color, and, after the usual time, from two to five days, an unadherent, clotted, dirty-looking pellicle would cover about two-thirds of the surface, presenting, as usual, the vibriones, monads, and triple phosphates.

Indeed, so far as the appearances of the pellicles went, we found no type distinctive of the urine of pregnancy; for while the urine of women, whom we knew to be pregnant, furnished us with entirely different pellicles, under exposure to the same conditions of atmospheric temperature and light, we found even among our limited number of specimens from the urine of unimpregnated females, and men, that pellicles would form similar to those on the urine of pregnant women.

With regard to the microscopic appearances, we can say, that so uniform were the appearances of vibriones, monads, and triple phosphates, that we soon ceased to allude to them, otherwise, than by their initials.

While the great proportions of our specimens were acid, we yet rarely met with crystals of uric acid. Urates of ammonia were not infrequent on the first day of exposure, and we have some cases recorded as presenting the urates of soda, and the oxalates of lime were often seen.

We had hoped that Stark's views might bear the test of examination, and that it might be possible to observe with the microscope some appearance which should serve as a test for pregnancy.

Nearly one hundred and sixty specimens of the urine of pregnant women have been thus examined; without the disclosure of any thing peculiar to the urine of pregnancy.

Torulæ were not unfrequently met with, and generally, without the stems, present in diabetic urine, and this led to our examination of the urine for sugar, which was done by boiling a portion with liquor potassæ, kept in bottles freed from lead.

If this test should be considered at all reliable, the proportion of such cases was found to be large.

While engaged in these examinations, a specimen of urine was brought by a student of medicine, Mr. Bedell, for examination. It was from a patient of his, suspected of pregnancy.

When I saw it (in the evening), it had already stood some days, and a thin, even, light-colored pellicle had formed—lighter in color than the subjacent urine, and commencing to crack. The urine was not albuminous, and the microscope disclosed numerous small globular bodies—perfectly circular; regular in size; whitish in color; transparent in the centre, and opalescent on the edges—floating in the pellicle, sediment and intermediate strata; acetic, hydrochloric, sulphuric and nitric acids did not affect them, nor were they changed by succussions with ammonia, ether, and chloroform.

In a word, they answered so fairly to the description by Stark of his “globular bodies,” that we suspected the woman of being pregnant by all the laws of “Gravidine.” This patient remained under the care of Mr. Bedell, who knows that she was not pregnant during all the time that she continued under his observation. And as this was the only specimen that presented appearances resembling the globules described by Dr. Stark, we have not been able to confirm his observations.

One of our specimens of urine from men presented appearances answering pretty closely to Dr. Stark’s description, but by the seventh day they had commenced to germinate.

Conclusions.—In short, the result of our labors but enables us to say, that we have seen nothing conclusive as to recognizable peculiarities in the urine of pregnancy. We think that there is nothing positive in its indications, and that its appearances can scarcely even be called “corroborative.”

We reached this conclusion slowly, yet without regret; for we had no preconceived views to further, and only desired to marshal an array of facts which might speak to us for themselves.

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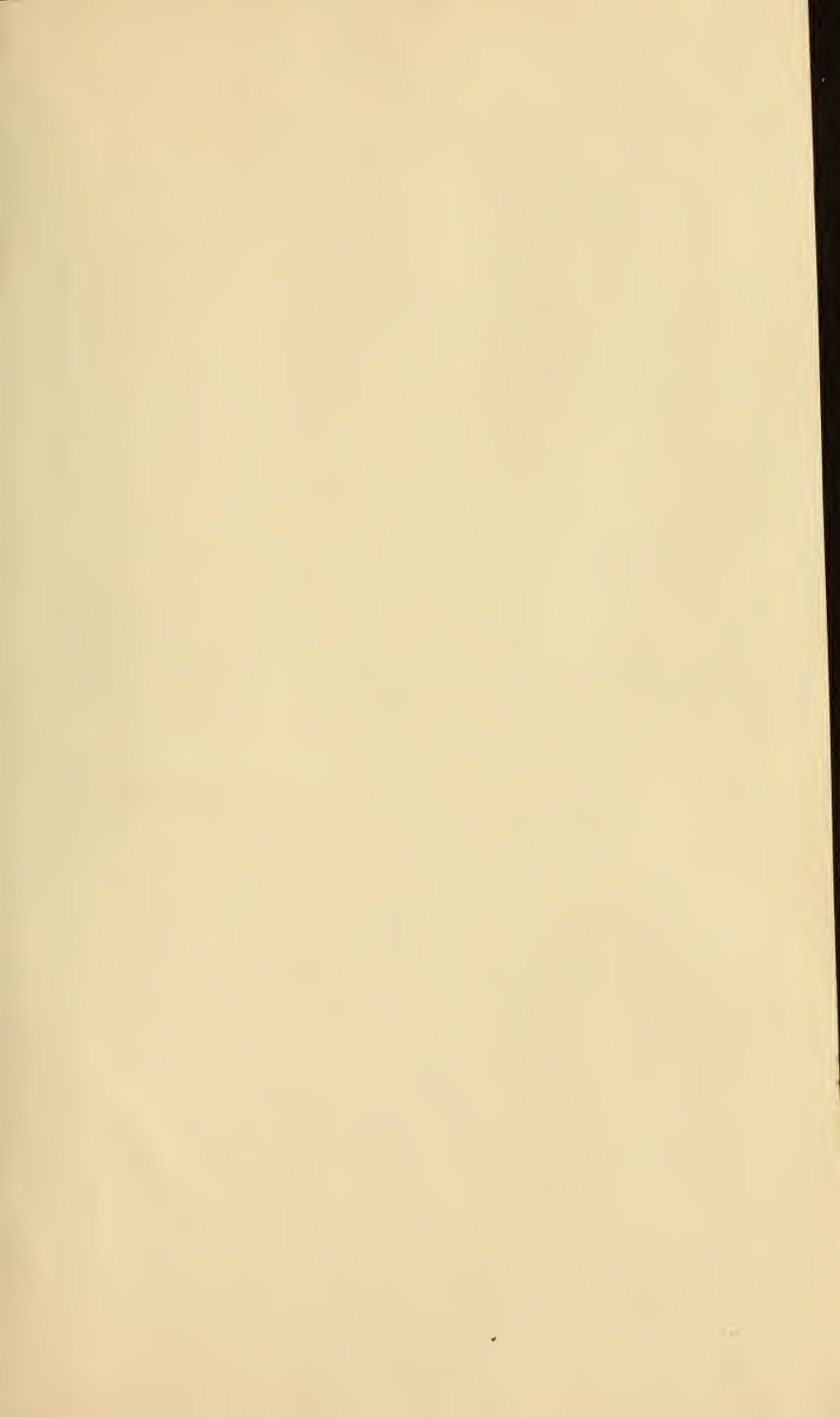
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